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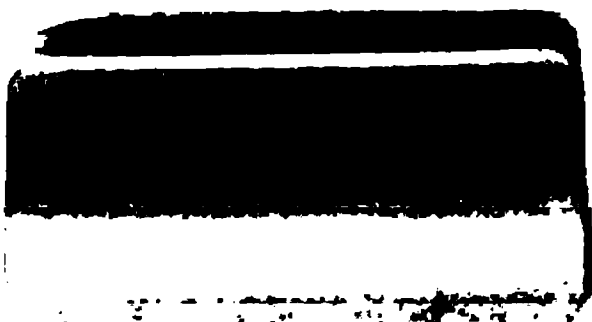
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Dec. 1913

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[Mr. H. Gordon Tidey.

WEST COAST CORRIDOR EXPRESS (10.0 A.M. *ex* EUSTON) NEAR EUSTON JUNCTION.

4-6-0 Locomotive No. 1517. *Sir Frederick Harrison.*

The History
of the
London & North Western
Railway
ILLUSTRATED

By
WILFRED L. STEEL

LONDON :
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1914

PREFACE.

The London and North-Western Railway claims, and quite rightly, to be the Premier line of the British Isles, and it is a surprising fact that while many of the chief companies have had their histories written yet, up till now, no detailed history of the London and North-Western has ever appeared. In many respects the growth of the North-Western is more interesting than that of any other company, for included in the North-Western system are the original Liverpool and Manchester Railway, the first public passenger railway in the world, and the London and Birmingham Railway, the first trunk line. From these small beginnings the London and North-Western system of to-day has become evolved; amalgamations, leases, and working agreements have been effected, until to-day the London and North-Western, possessing a capital of £124,000,000 and just under 2,000 miles of line, unquestionably stands out as the Premier line of the country. We know a few cavil at this assertion, but although the Great Western may own more miles of line, the Midland have a larger nominal capital, and the Great Eastern carry more passengers, yet when one takes everything into consideration, the facts all point to one conclusion, and that is, that the London and North-Western Railway is the Premier line of the country.

This work does not claim to be a technical treatise with every detail of railway working carefully described and explained, it is merely meant to be a history for the non-technical reader, in which an attempt is made to show how the great system has been built up piecemeal, and to give the chief engineering features of interest, a few details of the more famous locomotives, and a brief resumé of the improvements in train services, whilst the financial history of the company is also briefly dealt with. In compiling this history reference has had to be made to an innumerable list of books,

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papers, and periodicals, and it would be well-nigh impossible to acknowledge each reference as they occur. The Author, however, would like to state that he feels himself deeply indebted to the different works consulted, especially to the late Sir Geo. Findlay's 'Working and Management of an English Railway,' Mr. G. P. Neele's 'Railway Reminiscences,' and various year's editions of Bradshaw's 'Railway Manual.' In writing this book the chief difficulty has been not to know what to put in, but to know what to leave out. We have tried to make this work as accurate as possible, but to be absolutely accurate in a work of this description is no easy task. Let us take an example that has occurred more than once: A railway is opened in the early railway days, several works relating to this are consulted and they all give different dates for the opening! The Author will, therefore, take it as a personal favour if any readers will send him corrections, or any suggestions. The writer wants it to be distinctly understood that this book is in no way an "official" history of the London and North-Western Railway; doubtless, had the Author desired it, the London and North-Western, with their usual courtesy, would have extended him a helping hand and supplied much interesting information, but such help could only have been accepted at the price of his impartiality, and so the writer preferred to obtain his information from other channels. After the book was written, the London and North-Western Railway was approached with a view to obtaining the best illustrations of the system, and the Company very kindly agreed to provide a large part of the illustrations, for which the Author is pleased to have this opportunity of expressing his sincere thanks. Finally, the Author would like to say that if some of his readers obtain as much pleasure in reading this book as the Author obtained in writing it, then he will feel amply—indeed, more than amply—rewarded for the time and care bestowed in compiling it.

WILFRED L. STEEL.

SWYNNERTON PARK,
STONE, STAFFS.

October, 1913.

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CHAPTER I.

The Liverpool & Manchester Railway.**1824—1845.**

As most people are aware, the London and North-Western Railway was formed in 1846 by the amalgamation of the London and Birmingham, Grand Junction (which had just previously amalgamated with the Liverpool and Manchester), and the Manchester and Birmingham Railways ; since which time it has extended in all directions and absorbed other railways all over the country.

In starting to relate the history of such an undertaking the chief difficulty is to know where to begin, and to say which of the amalgamating lines was the parent system ; but we think most people, after consideration, will agree that to the Liverpool and Manchester Railway belongs the honour of being the parent of the London and North-Western Railway. However, some of the other lines also have grounds for claiming this honour. The London and Birmingham Railway was the first great trunk line opened from London, while for years the Grand Junction Railway was, perhaps, the most important line in the country ; whilst even from the point of view of seniority, the Liverpool and Manchester Railway is not the oldest line now forming part of the London and North-Western Railway, as several lines are now included in the system, which obtained their Acts prior to the passing of the Liverpool and Manchester Bill, namely, the Sirhowy Railway in South Wales, authorised in 1802 ; parts of the Llanvihangel, a mineral line, or rather tramroad, also in South Wales, authorised in 1811 ; the Bolton

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and Leigh ; the Nantlle, a slate line at Carnarvon, and the Cromford and High Peak, the three last being authorised in 1825, a year before the Manchester and Liverpool Railway. It has now generally come to be looked upon as an accepted fact that the Stockton and Darlington Railway, authorised in 1825, was the first proper railway in the world, while the Liverpool and Manchester Railway was the first public passenger railway. We will, therefore, commence our history of the London and North-Western Railway by narrating the oft-told story of the Liverpool and Manchester Railway. Railways have nowadays become such an integral part of our national life that we are rather apt to take their wonders for granted, and the old proverb about familiarity breeding contempt is, perhaps, truer in no other case. But let us try and imagine for a moment what the country would be like without railways ; the whole fabric on which modern life is founded crumbles away. The imagination shudders at the idea. But yet it is under a hundred years since the Stockton and Darlington and the Liverpool and Manchester Railways were opened. Railways, like locomotives, were not the invention of one man, though perhaps George Stephenson did more for them than anyone else ; they simply developed bit by bit ; starting as wooden tramroads for conveying coal at collieries, they became evolved into iron roads, gradually improving in one way and then in another until to-day the four track permanent ways of our great railways stand as the outcome of these little wooden tramroads.

The earliest project for a new means of communication (one cannot say railway) between Liverpool and Manchester was in 1797, when a tramroad to be worked by horses was proposed by William Jessop, who actually surveyed a route between the two places. This, however, did not appear to be very successful, and during the

following year (1798) Benjamin Outram made another survey for a line between the two towns, but his project did not meet with any better fortune. After these two failures nothing was heard of the project for some time, but the canal charges were so excessive and the communication so slow that in 1821 the project for a tramroad between Manchester and Liverpool again came to the front. Accordingly, a preliminary committee was formed under the chairmanship of Joseph Sandars, a leading merchant of Liverpool, and a route between the two towns was surveyed by William James, a land agent and surveyor, who had already laid out several tramroads, and done much to urge the adoption of railways, and who is looked upon by many people as the "Father of Railways." This survey of James' fared no better than its two predecessors of twenty years before; it had several defects, and it was arranged to make another survey the next year. In the meantime, James had made a journey to Killingworth to see George Stephenson's locomotives, where he became greatly struck by the locomotives, and also by the genius of their constructor, and thenceforward James became a great advocate for the use of locomotive power on railways. Next year James made another survey, and this time he was assisted by Robert Stephenson, George Stephenson's son; and incidentally James very nearly met his death by sinking into Chat Moss while surveying, and further progress was stopped for a time owing to the fact that a firm place could not be found in this great quaking bog on which to place the theodolite. Surveying in those days was a very thankless, not to say dangerous, occupation, and great care had to be taken not to interfere with parks and game preserves, surveyors frequently being unceremoniously warned off as trespassers by gamekeepers. This last survey, however,

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was not completed in time to be embodied in a Bill in Parliament, and so it went the same way as its predecessors. About this time a series of heavy misfortunes came upon Mr. William James; all his money being locked up in collieries and real estate, he was quite unable to meet the unexpected liabilities, and so instead of being a millionaire, as he was reported to be, he found himself declared a bankrupt. This naturally greatly delayed the business of the Liverpool and Manchester Railway, and under these circumstances the committee decided to appoint a new engineer. The appointment was offered to, and accepted, by George Stephenson, the engineer of the Stockton and Darlington Railway, which was at this time nearing completion.

On the 29th of October, 1824, the first prospectus of the Liverpool and Manchester Railway was issued, in which it was stated that goods would be conveyed between the two towns in 5 or 6 hours, as compared to 36 hours by the canal; and in the prospectus the cost of constructing the line was estimated at £400,000. A new survey was made by George Stephenson, and in the session of 1825 a Bill for the construction of a railway between Manchester and Liverpool was placed before Parliament. The Bill met with a storm of opposition, the canal companies and other vested interests brought the full power of their opposition to bear on it, and the landowners were there in great force to oppose it. Looking back now the opposing evidence seems to have been frivolous and absurd; it was quite gravely stated that the cows along the line would be terrified and cease to give milk; that if steam engines were used, the sparks would set fire to all the buildings along the line; that the smoke would kill the birds, and it was also prophesied by many that the race of horses would soon become extinct!

Nothing was too ridiculous to say against the line, and no personal abuse or calumny was too bad to hurl at the promoters of the undertaking. On the 21st of March, 1825. the Bill went into Committee of the Commons. The counsel for the Bill were Mr. Adam, Mr. Serjeant Spankie, Mr. William

GEORGE STEPHENSON.

Brougham and Mr. Joy; while the opposing counsel included Mr. Alderson (afterwards Baron Alderson), Mr. Parke (afterwards Baron Parke), Mr. Harrison, and Mr. Erle. We have neither the space nor the inclination to deal with all the evidence before the Committee; we will merely

content ourselves with a short account of some of the evidence, which we will quote from Samuel Smiles' "*Lives of George and Robert Stephenson.*" "On the 25th," says Dr. Smiles, "George Stephenson was called into the witness-box. It was his first appearance before a Committee of the House of Commons, and he well knew what he had to expect. He was aware that the whole force of the opposition was to be directed against him; and if they could break down his evidence, the canal monopoly might yet be upheld for a time. Many years afterwards, when looking back at his position on this trying occasion, he said:—'When I went to Liverpool to plan a line from thence to Manchester, I pledged myself to the directors to attain a speed of 10 miles an hour. I said I had no doubt the locomotive might be made to go much faster, but that we had better be moderate at the beginning. The directors said I was quite right; for that if, when they went to Parliament, I talked of going at a greater rate than 10 miles an hour, I should put a cross upon the concern. It was not an easy task for me to keep the engine down to 10 miles an hour, but it must be done and I did my best. I had to place myself in that most unpleasant of all positions, the witness-box of a Parliamentary Committee. I was not long in it before I began to wish for a hole to creep out at. I could not find words to satisfy either the Committee or myself. I was subjected to the cross-examination of eight or ten barristers, purposely as far as possible to bewilder me. Some member of the Committee asked if I was a foreigner, and another hinted that I was mad. But I put up with every rebuff, and went on with my plans, determined not to be put down.' Mr. Stephenson stood before the Committee to prove what the public opinion of that day held to be impossible. The self-taught mechanic had to demonstrate the

practicability of accomplishing that which the most distinguished engineers of the time regarded as impracticable. Clear though the subject was to himself, and familiar as he was with the powers of the locomotive, it was no easy task for him to bring home his convictions, or even to convey his meaning to the less informed minds of his hearers. In his strong Northumbrian dialect he struggled for utterance, in the face of the sneers, interruptions and ridicule of the opponents of the measure, and even of the Committee, some of whom shook their heads and whispered doubts as to his sanity, when he energetically avowed that he could make the locomotive go at the rate of 12 miles an hour! It was so grossly in the teeth of all the experience of honourable members, 'That the man must certainly be labouring under a delusion!' And yet his large experience of railways and locomotives, as described by himself to the Committee, entitled this 'untaught, inarticulate genius,' as he has so well been styled, to speak with confidence on such a subject. Beginning with his experience as a brakesman at Killingworth in 1803, he went on to state that he was appointed to take the entire charge of the steam-engines in 1813, and had superintended the railroads connected with the numerous collieries of the Grand Allies from that time downwards. He had laid down or superintended the railways at Burradon, Mount Moor, Springwell, Bedlington, Hetton, and Darlington, besides improving those at Killingworth, South Moor, and Derwent Crook. He had constructed fifty-five steam engines, of which sixteen were locomotives. Some of these had been sent to France. The engines constructed by him for the working of the Killingworth Railroad, eleven years before, had continued steadily at work ever since, and fulfilled his most sanguine expectations. He was prepared to prove the safety of working

high pressure locomotives on a railroad, and the superiority of this mode of transporting goods over all others. As to speed, he said he had recommended 8 miles an hour with 20 tons, and 4 miles an hour with 40 tons ; but he was quite confident that much more might be done. Indeed, he had no doubt they might go at the rate of 12 miles. As to the charge that locomotives on a railroad would so terrify the horses in the neighbourhood, that to travel on horseback, or to plough the adjoining fields, would be rendered highly dangerous, the witness said that horses learnt to take no notice of them, though there were horses that would shy at a wheel-barrow. A mail-coach was likely to be more shied at by horses than a locomotive. In the neighbourhood of Killingworth the cattle in the fields went on grazing while the engines passed them, and the farmers made no complaints.

Mr. Alderson, who had carefully studied the subject, and was well skilled in practical science, subjected the witness to a protracted and severe cross-examination as to the speed and power of the locomotive, the stroke of the piston, the slipping of the wheels upon the rails, and various other points of detail. Mr. Stephenson insisted that no slipping took place, as attempted to be extorted from him by counsel. He said : " It is impossible for slipping to take place so long as the adhesive weight of the wheel upon the rail is greater than the weight to be dragged after it." As to accidents, Stephenson said he knew of none that had occurred with his engines. There had been one, he was told, at the Middleton Colliery, near Leeds, with a Blenkinsop engine. The driver had been in liquor and put a considerable load on the safety valve, so that upon going forward the engine blew up and the man was killed. " But," he added, " if proper precautions had been used with that boiler the accident would not have happened."

The following cross-examination occurred in reference to the question of speed : "Of course," he was asked, "when a body is moving upon a road, the greater the velocity, the greater the momentum that is generated?"

"Certainly."

"What would be the momentum of 40 tons moving at the rate of 12 miles an hour?"

"It would be very great."

"Have you seen a railroad that would stand that?"

"Yes."

"When?"

"Any railroad that would bear going 4 miles an hour; I mean to say, that if it would bear the weight of 4 miles an hour, it would bear it at 12."

"Taking it at 4 miles an hour, do you mean to say that it would not require a stronger railway to carry the same weight 12 miles an hour?"

"I will give an answer to that. I dare say every person has been over ice when skating, or seen persons go over, and they know that it would bear them better at a greater velocity than it would if they went slower; when they go quick, the weight in a measure ceases."

"Is not that upon the hypothesis that the railroad is perfect?"

"It is; and I mean to make it perfect."

"Mr. Alderson cross-examined him at great length on the plans of the bridges, the tunnels, the crossings of the roads and streets, and the details of the survey, which, it soon clearly appeared, were in some respects seriously at fault. It seems that after the plans had been deposited, Stephenson found that a much more favourable line might be made, and he made his estimates accordingly, supposing that Parliament would not confine the company to the precise plan which had been deposited. This was felt to be a serious blot on

the Parliamentary case and one very difficult to be got over. For three entire days was our engineer subjected to this cross-examination. He held his ground bravely, and defended the plans and estimates with remarkable ability and skill; but it was clear they were imperfect, and the result was on the whole damaging to the measure."

The case for the opposition was next taken, and masses of evidence were given to prove that the line could never be constructed. The case for the opposition was summed up by Mr. Alderson in a speech which lasted for two days, in the course of which he stated the Liverpool and Manchester Railway was "the most absurd scheme that ever entered into the head of man to conceive. My learned friends almost endeavoured to stop my examination; they wished me to put in the plan, but I had rather have the exhibition of Mr. Stephenson in that box. I say he never had a plan,—I believe he never had one—I do not believe he is capable of making one. His is a mind perpetually fluctuating between opposite difficulties: he neither knows whether he is to make bridges over roads or rivers, of one size or another; or to make embankments, or cuttings, or inclined planes, or in what way the thing is to be carried into effect. Whenever a difficulty is pressed, as in the case of a tunnel, he gets out of it at one end, and when you try to catch him at that, he gets out at the other." A great point was made by the opposition of the impossibility of taking a railway across such a quaking morass as Chat Moss. At length the Committee considering the Bill divided, and the result was that the preamble was carried by one vote. The Committee then proceeded to deal with the clauses, and the first and second clauses were rejected, and as these two were the clauses empowering the Company to construct the line, and to acquire land, the scheme was wrecked and the Bill

was accordingly withdrawn. Thus the landowners and the vested interests triumphed over the railway promoters. But the communications between Manchester and Liverpool were far too unsatisfactory to be allowed to remain as they were; the ponderous road wagons and the canal barges were quite inadequate to deal with the traffic, while the charges were excessive, the charge for conveying a ton of goods between the two places being 18 shillings, and the time occupied on the journey

THE FAMOUS *Rocket* LOCOMOTIVE.

36 hours to 2 days, and sometimes considerably more; indeed at this time it was even said that while merchandise was brought from New York to Liverpool in 21 days, goods had, owing to various delays, frequently taken longer going from Liverpool to Manchester. Under these circumstances it is not surprising that the railway promoters expressed their intention of again seeking Parliamentary powers for their scheme. As the last survey had been found to be defective in certain

particulars during its career in Parliament, the Committee decided to have a new survey made. This time they did not employ Mr. Stephenson; Messrs. George and John Rennie, two of the most famous engineers of the day, in conjunction with Mr. Charles Vignoles, making a new survey. A Bill for the construction of a Liverpool and Manchester Railway was deposited in Parliament for the next session, and this time it met with better success. In Committee the preamble was declared proved by a majority of 43 to 18, the third reading of the Bill was carried in the House of Commons by a majority of 88 to 41, while in the House of Lords it was carried almost unanimously, and on the 7th of May, 1826, the Act "for making and maintaining a Railway or Tramroad from the town of Liverpool to the town of Manchester" received the Royal assent.

The first chairman of the board of directors of the Liverpool and Manchester Railway was Mr. Charles Lawrence; and the board's first business was naturally to appoint a head engineer and arrange for the construction of the line. The appointment was offered to the Rennies, but they failed to come to a satisfactory arrangement with the Company, and so the board appointed George Stephenson their chief engineer at a salary of £1,000 per annum. Although the Liverpool and Manchester Railway had secured its Act of Parliament, it was as yet only at the beginning of its labours, for in the then existing state of engineering science, the work of constructing the 30 odd miles of line promised to be a herculean task. The works on the line would not be considered light even for modern practice, but when one considers that railway engineering was then in its infancy, the difficulties which confronted the constructors will be better realised.

George Stephenson soon proceeded to get the

line under construction, and appointed three resident assistant engineers—Joseph Locke, William Allcard, and John Dixon. The chief works were undoubtedly the cuttings and tunnels at the Liverpool end of the line, and the embankment across Chat Moss, a few miles from Manchester. How the line was floated across Chat Moss has often been told, but we think it will bear retelling once more. Chat Moss occurred on the section given to John Dixon and to George Stephenson, and to him is due the credit of taking the railway across 4 miles of a slimy peat bog, an oozy mass which engulfed for ever any object which by chance was thrown on its treacherous surface. The following account of how Stephenson floated the line across the quaking moss is quoted from "The Lives of the Stephensons." "The first thing done," says Dr. Smiles, "was to form a foot-path of ling or heather along the proposed road, on which a man might walk without risk of sinking. A single line of temporary railway was then laid down, formed of ordinary cross bars about 3 feet long and an inch square, with holes punched through them at the ends and nailed down to temporary sleepers. Along this way ran the wagons in which were conveyed the materials requisite to form the permanent road. These wagons carried about a ton each, and they were propelled by boys running behind them along the narrow iron rails. The boys became so expert that they would run the 4 miles across at the rate of 7 or 8 miles an hour without missing a step, if they had done so, they would have sunk in many places up to their middle. A comparatively slight extension of the bearing surface being found sufficient to enable the bog to bear this temporary line, the circumstance was a source of increased confidence and hope to our engineer in proceeding with the formation of the permanent roadway

alongside. The digging of drains had been proceeding for some time along each side of the intended line; but they filled up almost as soon as dug, the sides flowing in, and the bottom rising up. It was only in some of the drier parts of the bog that a depth of 3 or 4 feet could be reached. The surface ground between the drains, containing the intertwined roots of heather and long grass, was left untouched, and upon this was spread branches of trees and hedge cuttings. In the softest places, rude gates or hurdles some 8 or 9 feet long by 4 feet wide, interwoven with heather, were laid in double thicknesses, the ends overlapping each other; and upon this floating bed was laid a thin layer of gravel, on which the sleepers, chairs, and rails were laid in the usual manner. Such was the mode in which the road was formed upon the moss. It was found, however, after the permanent way had been thus laid, that there was a tendency to sinking at those parts where the bog was softest. In ordinary cases where a bank subsides the sleepers are packed up with ballast or gravel; but in this case the ballast was dug away and removed in order to lighten the road, and the sleepers were packed instead with cakes of dry turf or bundles of heath. By these expedients the subsided parts were again floated up to the level, and an approach was made towards a satisfactory road. But the most formidable difficulties were encountered at the centre and towards the edges of the Moss, and it required no small degree of ingenuity and perseverance on the part of the engineer successfully to overcome them."

The work of constructing the line across the Moss was a slow and tedious task, as may be judged by the fact that it took 670,000 cubic yards of material to form 277,000 cubic yards of embankment; indeed, it is reported that when the engineers came to report progress, the visible work was frequently less than

what it had been a month before. Under these circumstances it is not surprising that more than once the board seriously discussed the expediency of abandoning the works on the Moss. We will tell the story in Stephenson's own words: "After working," said he, "for weeks and weeks in filling in materials to form the road, there did not yet appear to be the least sign of our being able to raise the solid embankment one single inch; in short we went on filling in without the slightest apparent effect. Even my assistants began to feel uneasy, and to doubt the success of the scheme. The directors, too, spoke of it as a hopeless task; and at length they became seriously alarmed, so much so, indeed, that a board meeting was held on Chat Moss to decide whether I should proceed any further. They had previously taken the opinion of other engineers, who reported unfavourably. There was no help for it, however, but to go on. An immense outlay had been incurred, and great loss would have been occasioned had the scheme been then abandoned, and the line taken by another route. So the directors were compelled to allow me to go on with my plans, of the ultimate success of which I myself never for one moment doubted."

Not a great distance from Chat Moss was Parr Moss, which also had to be crossed, and although it was not nearly so long as Chat Moss, it engulfed many thousand tons of stone and shale before a firm road bed appeared above the Moss. It was while Stephenson was building the Sankey viaduct that he first met Thomas Brassey, a man destined in later years to become known all over the world as a railway contractor. Stephenson had gone to Stourton in search of stone for the viaduct, and here he met Brassey, and formed a friendship that was to last until the end of their lives; Stephenson persuaded Brassey to take up Railway Contracting,

and the two thereafter became inseparably connected. The Olive Mount cutting and tunnel into Liverpool were formidable works, the tunnel was 2,200 yards in length, while the cutting was about 2 miles long and 80 feet deep in some parts, and had to be cut through the solid rock ; it is estimated that nearly half a million cubic yards of stone were quarried out of it.

Beside the foregoing works there were 63 bridges to be built, including the first bridge in the world to be built on the skew at Rainhill. It is interesting to notice that during the construction of the line two locomotives were used on it for drawing trains of excavated material from the cuttings to the embankments; these were the *Lancashire Witch* and the *Twin Sisters*, the latter a curious locomotive with two chimneys, built by Stephenson.

At this time it had not yet been definitely settled whether locomotives were to be used on the opening of the line, and even the success of locomotives on the Stockton and Darlington Railway had not finally decided the Board, for some still hankered after the idea of ropes and stationary engines. Thus we find the directors writing on March 27th, 1828: "The nature of the power to be used for the conveyance of goods and passengers becomes now a question of great moment, in whatever principle the carrying department may be conducted. After due consideration, the engineer has been authorised to prepare a locomotive engine which, from the nature of its construction and from the experiments already made, he is of opinion will be effective for the purposes of the Company without proving an annoyance to the public. In the course of the ensuing summer it is intended to make trials on a large scale so as to ascertain the sufficiency in all respects of this important machine. On this subject, as on every other connected with

the execution of the important task committed to his charge, the directors have every confidence in Mr. Stephenson, their principal engineer, whose ability and unwearied activity they are glad of this opportunity to acknowledge."

This question as to the motive power seems to have been a very divided point amongst the Board of the Liverpool and Manchester Railway during the time the line was under construction.

THE MOORISH ARCH AT LIVERPOOL, LOOKING FROM THE TUNNEL.

(From a print published about 1830.)

It is easy to be wise after the event, but let us try and look at the matter from the point of view of the Liverpool and Manchester Board. Locomotives were then in their infancy, in fact in a very crude experimental stage despite their success on the Stockton and Darlington line, a line whose traffic was very different from the Liverpool and Manchester Railway, while stationary engines and ropes were more or less proved ; besides, there were

numerous points which the Board had to take into consideration, such as safety, maintenance charges, and many other things. So it will readily be seen that the Liverpool and Manchester Board had no small question to settle, especially considering what little previous experience there had been in these matters. In order to settle the matter a deputation was sent to examine the working of locomotives on the Stockton and Darlington and neighbouring colliery lines, and this deputation reported in favour of stationary engines. Before deciding anything the Company asked Geo. Stephenson to make a report on the two systems. The report, dated November 5th, 1828, is as follows:—

“GENTLEMEN,—Agreeably with your request I have examined the report drawn up by the deputation which visited the North. Respecting the detailed account taken from the Darlington Railway I have little to remark further than that locomotive engines will be found to do much more work upon the Liverpool and Manchester line of road than they can possibly do on the Darlington line, and that the wear and tear of engines made on the improved plan will not be one-half of that at present. I may observe that the wear and tear of the stationary engines on the Darlington Railway is not noticed by the Deputation. With reference to the wear and tear of rails by locomotive engines, I readily admit that on the Darlington Railway, where the road is very slight, some effect may be perceived; but on this line I do not see how any just comparison can be drawn. Here we have, however, rails and blocks, and what is of much more consequence, a better foundation for them to rest upon, besides having fewer and less acute curves; all which will have a great tendency to preserve the good condition of the road. On the Bandon and Wideopen Railway, where stationary engines are employed, had the Deputation remained at the

changing places any length of time I have no doubt they would have found that the stoppages or delays exceed what they now appear to anticipate. The good state of the road is easily accounted for by the light loads which are carried on it.

“The wear and tear of ropes is certainly at variance, not only with my experience, but also with the information which the deputation themselves received on the Hetton Railway. In this instance they attribute the increased consumption to the acuteness of the curves. I concede that the cause does operate, but I cannot admit the difference calculated upon in the report. I still remain of opinion that on this road the expense of ropes will much exceed the estimated sum. I shall now proceed to examine some of the items in the estimate made by the deputation. In their estimate on the necessary capital for fixed engines they reckon a 14-horse engine will lead over one mile 1,600 tons of goods per day. From the following calculation this power is evidently inadequate. The friction of the rope, that is the resistance which the rope makes to the fixed engines, over and above that of the carriages and load being very important, it is necessary to determine it with some precision before we proceed to calculate the requisite power for moving the load. In ascertaining this particular I have been guided by my experience on planes where the descending load is found barely sufficient to overcome the resistance of the rope, from which I find that a mile of 4-inch rope, weighing 32 cwts., will require a power equal to $2\frac{3}{4}$ horses moving at the rate of $2\frac{1}{2}$ miles per hour. Again, the effect of a horse power upon a Railroad is now well known from numerous experiments to be equal to 10 tons of goods moved at the rate of $2\frac{1}{2}$ miles per hour. It is therefore evident that 20 tons (the load calculated upon in

the report) without ropes will require 2 horses at the rate of $2\frac{1}{2}$ miles per hour and to this add $2\frac{3}{4}$ horses, the requisite power for the ropes, will give $4\frac{3}{4}$ horses the power required for moving both rope and load at that speed. But as the speed is reckoned at 10 miles per hour, and the power required increasing in the direct ratio of the velocity, it is obvious that a power of 19 horses will be required at each station to drag the above load. Let us now endeavour to ascertain if each load, containing 20 tons of goods moving at the rate of 10 miles per hour, is adapted for the conveyance of 1,600 tons per day in one direction as stated by the Deputation. It is clear that the load will pass from station to station in six minutes; on the arrival of the load the rope must be detached from the wagon and attached to the tail ropes, when a signal must be given before the other engine can commence, let us allow for this one minute at each end (surely no one can suppose that it can be done in less) and also that the rope returns at the rate of 15 miles per hour, which gives for each trip 12 minutes or 5 loads per hour, or for 12 hours 60 loads of 20 tons each = 1,200 tons per day. In this calculation the operations are suffered to go on with the utmost celerity without any provision being made for the slightest accidents, yet, notwithstanding this it is evident that not more than 1,200 tons can possibly be conveyed in twelve hours. On this data the following estimate is made. The cost of ropes I take as stated in the report, viz. 1d. per ton for the whole distance.

CAPITAL FOR FIXED ENGINES.

54 engines, 19 horses, each at £1,200	£64,800
Sheaves	7,128
Extra power, say	1,740
Cost of ropes	6,500
Contingencies	832
	<u>£81,000</u>

Interest on capital at $7\frac{1}{2}$ per cent. is £6,075, which, divided into 2,400 tons per day, gives 1·94d. per ton for the whole distance. Working the fixed engine, I will take as detailed in the report, viz. 11,500 annually, which divided into 2,400 tons per day gives 3·67d. per ton for the whole distance. Attendance upon train and oil for carriages I will also take at 1·25d. per ton the whole distance.

SUMMARY OF EXPENSES PER TON BY
FIXED ENGINES.

Ropes	1d.
Capital	1·94d.
Working engine, etc.	3·67d.
Attendance, oil, etc.	1·25d.
	<hr/>
	7·86d.
	<hr/>

“LOCOMOTIVE ENGINES.—The deputation in making their calculations on the expense of conveying goods by these kind of engines have taken the price per ton paid upon the Stockton and Darlington Railroad as their guide, viz. $\frac{1}{4}$ d. per ton per mile.

“This data is far from being applicable to the Liverpool and Manchester Road, for in the former the descents and ascents in the line are beyond what is desirable, and, moreover, the load is solely in one direction. The engine, therefore, have to travel over one-half the distance without any useful effect whatever, which is a disadvantage I do not contemplate on this road, indeed, if we go as far as to suppose the load even on this road altogether in one direction, the engine would produce a greater effect than on the Darlington Road, not having in any instance to contend with ascents that would materially reduce their performance.

“The following is an estimate of expense of

leading goods by locomotive engines on the Liverpool and Manchester line:—

48 engines @ £600 =	£28,800 = Capital.	£
Interest on this sum at $7\frac{1}{2}$ per cent. ...	2,160	
Repairs at £50 each per annum, including wheels, fire bars, etc.	2,400	
One engineer and boy at each engine ...	3,840	
Each engine 250 tons of coals at 7/- ...	4,200	
Oil, hemp, etc., etc.	480	
	<u>£13,080</u>	

“The sum divided into 2,400 tons per annum gives 4'18d. per ton for the whole distance, to

THE *Experience* FIRST CLASS MAIL COACH.
Note the fish-belly rails, and stone sleepers.

which must be added $\frac{1}{4}$ d. per ton for oiling the wagons, making the total cost for locomotive engines 4'43d. per ton for the whole distance. Being rather more than half the expense by stationary engines, there will consequently accrue to the Company an annual saving in the items of leading of £10,000. It will be observed that in the above calculation £50 has been allowed for the annual cost of repairing locomotive engines, which exceeds

that thought sufficient by the Deputation after having minutely investigated the charges at Darlington. The same caution has been adhered to throughout the whole of the items, and particularly with respect to the consumption of coals, when it will be seen that more is allowed for one locomotive engine than for one 19-horse permanent engine.

“FIXED ENGINES.—In reply to the remarks made against fixed engines, I shall take them as they are placed in the report :—

“1st. The greater capital required is an objection too well understood to require any comment from me.

“2nd. The crossing of the public roads with ropes would assuredly be very objectionable unless bridges were built, which would require a still further increase of capital as well as make very abrupt ascents in crossing those roads where the railway now crosses on a level. But a still greater difficulty than this exists, in preventing the occupier of such lands as may lie between the engine stations from having that free access to and use of the Railway, to which by the present Act of Parliament he is entitled.

“3rd. I should conceive that 54 stationary engines of 19-horse power each would emit as much smoke as 48 locomotives, therefore, this objection applies as much to one mode as to the other.

“4th. This remark is by far the most important of the whole, and admits of being widely enlarged upon. It will, I think, be readily admitted that where an engine is working for 12 hours a day one accident in 12 months may be expected, and I will suppose that it only requires 3 hours to repair this damage. It must not be forgotten that this delay is experienced throughout the whole line for this space of time, and that there are 54 engines, which will make a total yearly stoppage of 162 hours, equal to $13\frac{1}{2}$ days, or a reduction of the

quantity of goods conveyed of 16,200 tons per annum. Accidents with the ropes I consider still more probable than with the engines, to which the last objection applies with equal force. I will suppose, further, that a wagon should get off the way when the train is moving at 10 miles per hour (and this may be expected to occur sometimes); the rope must either break or the wagons continue to move forward, which would be serious on high embankments. The consequences you may conceive in case of such an accident on Broad Green.

"5th. You are no doubt well aware of the prejudice existing in the public mind to require any observations from me.

"LOCOMOTIVE ENGINES. — The directors are aware that an apparatus is now in progress for ascertaining the practicability of burning coke or materially reducing the smoke from half-baked coal. The result of these experiments will probably be laid before you in a fortnight.

"The second objection alleged against locomotive engines will certainly not be found to operate, for in the whole of our deep excavations there will be found to exist a continual current of air which will prevent the lodgment of sulphurous vapours, but without the aid of such a current the velocity of the engine and the carriages will of themselves cause agitation in the air quite sufficient to obviate any inconvenience on this score. The smoke emitted from a locomotive engine cannot equal the smoke from the chimneys in a line of street, where the inconvenience is not felt.

"In answer to the third objection, let us suppose, for the sake of argument, that the rails sustain some injury from the locomotive engines. The extent of this injurious effect has been drawn from the Darlington Railway, where the rails are certainly too light and the engines moving on four wheels, which, of course, transfers the weight of the engine

to the rails by four points only ; but if six wheels are employed, the weight upon the rails becomes reduced in the ratio of 3 to 2. This alteration, which amounts to the same thing as reducing the weight of the engine, together with the additional strength of the rails used on the Liverpool and Manchester line, in a great degree removes the objection.

“ But I will go further and suppose that the rails are injured, and in 30 years are so reduced in strength that new ones are required from end to end of the line.

“ The whole weight of a single line of road 30 miles in length is 1,650 tons. This quantity, let us suppose that by wear and tear, is reduced one-fifth. There will remain

1,320 tons @ £8 a ton	...	...	...	£10,560
1,650 tons @ £12 a ton (the original cost)				19,800

Wear and tear of rails in 30 years ...	<u>£9,240</u>
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during which time 1,600 tons per day have passed along the road, making a charge for the above exigence of $\frac{147}{1000}$ ths of a penny for the whole distance, or $\frac{1}{200}$ ths of a penny per ton per mile. In this explanatory calculation I am aware that nothing appears for relaying the rails, but there is ample allowance made for it in the reduction in the weight, and also in the price of the worn-out rails. The difficulty of crossing Chat Moss is not so serious as is generally imagined. The engine being placed upon 6 wheels is one step towards removing this objection, but I am decidedly of opinion that the yielding of the moss will be entirely overcome when the covering which we are now spreading over the surface for receiving the rails and sleepers becomes compacted.

“ Let us suppose, however, that the moss does yield ; it is easy to allow the locomotive engine to travel at some distance before the train of wagons,

and to carry this idea still further, the train of wagons might also be divided into such portions as may be found most desirable by experiments. It is sufficient for the present to prove that the difficulty brought forward does not militate against the locomotive engine.

“The fifth objection that 20 or 30 locomotives would be in the way at the end of the line is certainly true if so many are allowed to come together, but this ought never to be the case. Different stations ought to be prepared on the line in situations where the objection would not apply. Such an arrangement would certainly be found indispensable to secure regularity. I do not see that it is necessary for more than 10 to be together at any one station, a number very easily managed. No bustle or inconvenience whatever arises from 6 being together at Darlington, nor would there be if the number were doubled. From 10 to 12 I consider quite a manageable number. There is no necessity for having more at one station.

“GENERAL OBSERVATIONS.—I now beg leave to lay before you a few other observations, which appear to have escaped the notice of the Deputation. To the mode of conveying intelligence from one station to another there is also a great objection. In clear weather a flag or telegraph is found to answer the best purpose, providing there are no obstructions, but in dull, thick weather this mode cannot be available. A bell is the next method, which is very uncertain from the variations of the wind, and in calm weather the number of bells at the different stations would be apt to misguide.

“The next is by attaching the rope to the engine, which is pulled a few yards, so as to communicate motion to the adjoining station, and although this is the most certain way in all weathers, there is necessarily a great loss of time, and puts the despatch calculated upon quite out of the question.

It must be expected that most of the embankments will shrink for a few years after operations are commenced, and from time to time will require ballasting to keep the level. The ballast must be brought to the place by a wagon, which must either be attached to the rope or a separate road laid down for the purpose. The former plan will involve the stoppage of the work, the latter an additional expense. It is evident that whatever be the power of the fixed engines proposed to be erected, the quantity of goods which they will convey must be limited, which is not the case with locomotives, for these may be increased in proportion as the trade increases, and setting aside the two ends of the line, there would not be more bustle in leading 10,000 tons per day by the latter mode than there would be in leading 2,400 by the former. It is quite certain, from the number of branches which will join the main line, that the trade in different parts will fluctuate exceedingly. This circumstance renders it imperative to employ more powerful engines and stronger ropes than will be required for the general traffic. For instance, a large quantity of coal will be sent from the Whiston Collieries to Liverpool. The engines and ropes between Liverpool and that place must be made stronger than has been calculated upon in the report of the Deputation. The capital, therefore, which they have assured must be modified, and much difficulty will be experienced in adjusting the powers of the various engines on the line, excepting, indeed, that they are all made very powerful to meet any contingent increase. If this provision be not made, we may suppose that goods from Manchester or that end of the line are equal to the full performance of the engines. In this case, the goods from the intervening places, as Whiston, Rainhill, etc., must be detained until the more

distant trade subsides. The difficulties which will inevitably be experienced are from the very nature of locomotive power simply and most effectually obviated. Should the trade at any part undergo a temporary increase or decrease, the necessary power may be immediately applied or withdrawn and disposed of as circumstances may require. It is also clear that if permanent engines be adopted every branch railway must form a junction at an engine, and a train from the branch must be joined to the train on the main line by the aid of horses and men.

“At each end of the line locomotive engines would have a desired advantage in dragging and moving the carriages backwards and forwards amongst the various branches, which will certainly be required, and not only at the ends of the line, but at every situation where goods are to be delivered upon the line. When these observations have been duly considered by the directors, they will perceive that in point of convenience and dispatch the two systems do not bear a comparison.

I am, gentlemen,

Your obedient servant,

(Signed) GEORGE STEPHENSON.

Nov. 5, 1828.

“P.S.—It is perhaps necessary to add that in the above estimate of the expenses by fixed engines I have taken the items generally from those stated by the Deputation. In doing this, it must not be concluded that I consider these scrupulously correct. For instance, the engines are taken at the precise power the traffic requires. I have never thought it advisable in any instance to calculate in this manner. Again, there will be required on Chat Moss at least three engines, if not five, that will need to be supported entirely on piles. I would estimate £1,000 each above

the average price £1,200, which is certainly very moderate, including appurtenances. There are other points which would admit of further observations.

(Initialed) G. S."

Any one reading the report cannot but be struck by the many advantages of locomotives. In fact, this is explained to such an extent that one cannot altogether call Stephenson an impartial witness. Indeed, it seems an extraordinary thing

AN EARLY SEASON TICKET !

Ivory Disc Free Pass, Liverpool and Manchester Railway.

for the Liverpool and Manchester Board to ask Stephenson to report on the two methods, as he was undoubtedly at that day the greatest advocate of the steam locomotive in the country. This question of method of locomotion seems for a long time to have been the chief thorn in the side of the Board, and all the time while they were haggling and discussing the question the line was gradually approaching completion, until at length it became

apparent that something must soon be settled. Accordingly the Board decided to hold a great trial for locomotives, and to see definitely what a locomotive could do, and thus secure the best type of engine for the line, so, with this end in view, on April 20th, 1829, they offered a premium of £500 for the most efficient locomotive. But although the prize was a high and lengthy one, the conditions which had to be observed by entrants were very severe. First of all, no engine was to weigh more than 6 tons, while engines over $4\frac{1}{2}$ tons were to be carried on six wheels, the boiler pressure was not to exceed 50 lbs. per square inch, two safety valves were to be fitted, one of which was not to be under the control of the driver, the highest part of the chimney to be not more than 15 feet from the rails, the minimum load was to be three times the weight of the locomotive, while the minimum speed was to be 10 miles per hour. This announcement naturally caused the greatest excitement, and most of the engineers who had any claim to fame as locomotive designers (there were, indeed, few in those days), set about constructing engines which they hoped would obtain for them the premium and, at the same time, the premier position as a locomotive designer. George Stephenson started to construct a locomotive for the great event, and we can well imagine his satisfaction at this chance of at last converting the many scoffers at the locomotive, and of finally proving its practicability and great superiority over the stationary engine. The building of the *Rocket*, for such was the name he gave his engine, marks such an important epoch in railway history, that we will tell the story of its building in full, and this cannot be done better than by inserting some letters written by Robert Stephenson, from the works at Newcastle, to Henry Booth, at the Railway Office, Liverpool, telling

him in detail how the building of this famous engine progressed :—

“ NEWCASTLE-UPON-TYNE,
August 3rd, 1829.

“ MY DEAR SIR,—Since my arrival arrangements have been made which I expect will enable us to have the premium engine working in the factory say this day three weeks. This will give us time to make experiments or any alterations that may suggest themselves. The tubes are nearly all made, the whole number will be completed by to-morrow night, they are an excellent job. The only point I consider at all doubtful is the clinking of the ends of the tubes. The body of the boiler is finished, and is a good piece of workmanship. The cylinder and other parts of the engine are in a forward state. After weighing such parts as are in progress, the following is an estimate of their weights :—

	CWT.	QRS.	LBS.
Boiler, without the tubes	9	3	7
25 copper tubes	4	2	22
Frames, carriages and bolts	4	3	3
1 pair of 4 ft. 8½ in. wheels and axle	13	1	0
1 pair of wagon wheels and axle ...	5	0	0
4 springs and bolts	2	0	20
Copper fire-place, including bars, etc.	6	0	0
Chimney and soot	2	0	0
4 supports for boiler on frame ...	1	2	4
2 engines complete, each 8 cwt. ...	16	0	0
Water in train boiler	11	3	0
Water in copper fire-box	3	0	0
	80	0	0

“ This weight, I believe, will cover everything. The wheels I am arranging so as to throw 2½ tons upon the large wheels in order to get friction upon the rail. WILL THERE BE ANY FATAL OBJECTION

RAISED TO THIS? You had better get the tender made in Liverpool; the coach makers that made the last tender will make one neater than our men. The barrel might be covered with something like the body of a coach. It may be made lighter than the last.

“We are daily expecting the arrival of the fire-box. I hope you will despatch it as quickly as possible, as we shall require it in 4 or 5 days. I have heard from Dixon that the iron hoops are failing upon the locomotives at that end of the line. Supposing that you would require spare wheels, I have ordered 4 metal ones to be got ready immediately; if you do not mean to have any spare ones, they can be used elsewhere. I thought it might be useful to have them ready. I am apprehensive that wooden wheels will be abandoned; a pair of them failed at Darlington some time ago—on the common wagons they appear to stand well.

“The failure of the hoop on travelling engines I am inclined to attribute to the horizontal connecting-rods, confining the wheels, when partially and unequally worn, to revolve in the same time, whilst the circumferences are unequal. This, indeed, appears the only distinction between the two applications. In the small engine the objection will not exist, and I am further persuaded a considerable loss of power is to be ascribed to this defect.

Yours most respectfully,

(Signed) ROB. STEPHENSON.

“I will write you in a few days detailing Hackworth’s plan of boiler; it is ingenious, but it will not destroy the smoke with coal, which I understand is intended to form a portion of this fuel; coke will be the remainder—he does not appear to understand that a coke fire will only burn

briskly when the escape of the carbonic acid gas is immediate. If the two large wheels having $2\frac{1}{2}$ tons upon them is an objection, please inform me. Some reduction may perhaps be made, but it must be very little, or the friction upon the rail will be inadequate to the load assigned."

"NEWCASTLE-UPON-TYNE,

August 21st, 1829.

"MY DEAR SIR,—Having been a good deal from home since I wrote you last, I have not had an opportunity of writing you particulars of our progress so promptly as I promised. The tubes are all clunk into the boiler, which is placed on the frame; wheels, springs and axle-carriages are all finished. The clinking of the tubes is tight with boiling water. I am arranging the hydraulic pump to prove the boiler up to 160 lbs. before proceeding any further. The cylinder and working gear is very neatly finished. I expect the mode for changing the gear will please you; it is now as simple as I can make it, and I believe effectual. The fire-box is put in its place, but it is not quite square built, which gives rise to a little apparent neglect in the workmanship; I have endeavoured to hide it as much as possible. To-morrow week I expect we shall be ready for trial in the evening.

"I should like to see you at Newcastle on the following Monday to make further trial, so that we might consult respecting any alterations that may suggest themselves during trial. I will write you between now and then to say positively when we shall make the trial, in the meantime let me know if you could get away from Liverpool. My father may perhaps also come, although he had better not be pressed for fear of something

happening in his absence. . . . Please inform my father and Mr. Locke the progress we have made. Could you, without inconvenience, procure us any money on account of the locomotive last sent—if you could do so—I should feel particularly obliged—the price is £550. Hoping to hear from you to say if I may expect the pleasure of seeing you at Newcastle.

I am, Yours faithfully,
(Signed) ROBT. STEPHENSON."

"NEWCASTLE-ON-TYNE,
August 26th, 1829.

"MY DEAR SIR,—On Wednesday I had the boiler filled with water and put up the pressure of 70 lbs. per square inch, when I found that the yielding of the boiler end injured the clinking of the tubes. I therefore thought it prudent to stop the experiment until we got some stays put into the boiler longitudinally. The boiler end at 70 lbs. per square inch came out full $\frac{3}{16}$ ths of an inch. This, you may easily conceive, put a serious strain on the clinking at the tube end. To-day I had the pressure up to a little above 70, the tubes were nearly every one tight, but the deflection of the end still was more than it was prudent to pass over. I am, therefore, putting in five more stays, which I believe will be effectual. A circumstance which has occurred within a few days induces me to regard severe pressures upon boilers injudicious. We put up two hydraulic presses in a paper mill, which are to bear $6\frac{1}{2}$ tons per square inch—the pipes which lead to the presses from the pumps were proved up to the pressure previous to leaving the factory and continued to act well for a week, when they burst with 5 tons per square inch. A new set of pipes were made which withstood the proof pressure, but afterwards burst with much less pressure. Query : Therefore, is it judicious to prove

the boilers to 150 lbs. per square inch? I should say not. A pressure of 100 lbs. per square inch would not be objectionable. If the engines were not so limited in weight, then I would say prove them to 150 lbs. or more. The chimney is made 14 inches diameter, being a little less than the area of the horizontal tubes. I think it should be less, the air being cooler it consequently occupied less space in the chimney than in the tubes. I am still sanguine as regards the weight—4 tons, I believe, will cover all. Of course I am calculating that if the engine is reduced in weight below $4\frac{1}{2}$, the last load dragged will be reduced in the same proportion. I am much pleased to hear of the performance of the *Lancashire Witch*; the more I hear, and experience I have in the locomotive principle, the more thoroughly I am convinced of its convenient adaptation to public railways. The putting in of the stays will delay the trial of the engine until Tuesday. If anything unexpected starts up I will let you know.

Yours faithfully,
(Signed) ROBT. STEPHENSON.

TRAVELLING

Liverpool and Manchester Railway.

The following are the Times of Departure from Liverpool, LIVERPOOL, and from Manchester, MANCHESTER.

FROM LIVERPOOL		FROM MANCHESTER	
First Class	Second Class	First Class	Second Class
8 15 a.m. to London 7 0 Morning	8 30 a.m. to London 7 30 Morning	8 15 a.m. to London 7 0 Morning	8 30 a.m. to London 7 30 Morning
11 0 " " " " " " " "	11 15 " " " " " " " "	11 0 " " " " " " " "	11 15 " " " " " " " "
2 0 Afternoon " " " " " " " "	2 15 " " " " " " " "	2 0 Afternoon " " " " " " " "	2 15 " " " " " " " "
4 45 Afternoon " " " " " " " "	4 55 " " " " " " " "	4 45 Afternoon " " " " " " " "	4 55 " " " " " " " "
7 15 Evening " " " " " " " "	7 30 " " " " " " " "	7 15 Evening " " " " " " " "	7 30 " " " " " " " "

By First Class Train, Four Times, Royal Mail - 4s. 6d.
" " " " " " " " " " " " " " - 4s. 6d.
" " " " " " " " " " " " " " - 4s. 6d.
" " " " " " " " " " " " " " - 4s. 6d.
Children under Ten Years, Half Price, in the Arms, Sun.
Change for the conveyance of Four-wheeled Carriages 2s. each.
Two-wheeled " " " " " " " " " " " " " " - 1s.
Houses - For One House 14s. - Two Houses 18s. - Three Houses 20s.
If 10 The Company will not be responsible for damage to any Goods beyond 10s. value by fire or accident.

Passengers (who state very early) are required to get in and out of the Railway Carriages at the last end only, to save time and space.

No Smoking allowed in the Carriages or Platforms. No passengers to be taken by any of the Company's Services, on pain of being fined.

SUGGAGE.
For better security, Passengers are requested to take Care, Bag and Mail. Packages inside the Carriage, and every description of Luggage, must be properly and fully secured.
The Weight allowed for each Passenger is 50lb., beyond which a Charge will be made on the rate of 1s. per cwt.

TO PRESTON AND WIGAN.
FROM LIVERPOOL
8 15 a.m. to Preston 7 0 Morning
11 0 " " " " " " " "
2 0 Afternoon " " " " " " " "
4 45 Afternoon " " " " " " " "
7 15 Evening " " " " " " " "

FROM MANCHESTER
8 30 a.m. to Preston 7 30 Morning
11 15 " " " " " " " "
2 15 Afternoon " " " " " " " "
4 55 Afternoon " " " " " " " "
7 30 Evening " " " " " " " "

ON SUNDAYS.
8 15 a.m. to Preston 7 0 Morning
11 0 " " " " " " " "
2 0 Afternoon " " " " " " " "
4 45 Afternoon " " " " " " " "
7 15 Evening " " " " " " " "

TO FLEETWOOD AND POULTON.
FROM LIVERPOOL
8 15 a.m. to Fleetwood 7 0 Morning
11 0 " " " " " " " "
2 0 Afternoon " " " " " " " "
4 45 Afternoon " " " " " " " "
7 15 Evening " " " " " " " "

FROM MANCHESTER
8 30 a.m. to Fleetwood 7 30 Morning
11 15 " " " " " " " "
2 15 Afternoon " " " " " " " "
4 55 Afternoon " " " " " " " "
7 30 Evening " " " " " " " "

ON SUNDAYS.
8 15 a.m. to Fleetwood 7 0 Morning
11 0 " " " " " " " "
2 0 Afternoon " " " " " " " "
4 45 Afternoon " " " " " " " "
7 15 Evening " " " " " " " "

TO LANCASTER.
FROM LIVERPOOL
8 15 a.m. to Lancaster 7 0 Morning
11 0 " " " " " " " "
2 0 Afternoon " " " " " " " "
4 45 Afternoon " " " " " " " "
7 15 Evening " " " " " " " "

FROM MANCHESTER
8 30 a.m. to Lancaster 7 30 Morning
11 15 " " " " " " " "
2 15 Afternoon " " " " " " " "
4 55 Afternoon " " " " " " " "
7 30 Evening " " " " " " " "

ON SUNDAYS.
8 15 a.m. to Lancaster 7 0 Morning
11 0 " " " " " " " "
2 0 Afternoon " " " " " " " "
4 45 Afternoon " " " " " " " "
7 15 Evening " " " " " " " "

TO BOLTON.
FROM LIVERPOOL
8 15 a.m. to Bolton 7 0 Morning
11 0 " " " " " " " "
2 0 Afternoon " " " " " " " "
4 45 Afternoon " " " " " " " "
7 15 Evening " " " " " " " "

FROM MANCHESTER
8 30 a.m. to Bolton 7 30 Morning
11 15 " " " " " " " "
2 15 Afternoon " " " " " " " "
4 55 Afternoon " " " " " " " "
7 30 Evening " " " " " " " "

ON SUNDAYS.
8 15 a.m. to Bolton 7 0 Morning
11 0 " " " " " " " "
2 0 Afternoon " " " " " " " "
4 45 Afternoon " " " " " " " "
7 15 Evening " " " " " " " "

TO ST. HELENS.
FROM LIVERPOOL
8 15 a.m. to St. Helens 7 0 Morning
11 0 " " " " " " " "
2 0 Afternoon " " " " " " " "
4 45 Afternoon " " " " " " " "
7 15 Evening " " " " " " " "

FROM MANCHESTER
8 30 a.m. to St. Helens 7 30 Morning
11 15 " " " " " " " "
2 15 Afternoon " " " " " " " "
4 55 Afternoon " " " " " " " "
7 30 Evening " " " " " " " "

ON SUNDAYS.
8 15 a.m. to St. Helens 7 0 Morning
11 0 " " " " " " " "
2 0 Afternoon " " " " " " " "
4 45 Afternoon " " " " " " " "
7 15 Evening " " " " " " " "

PARCELS.
For Wagon, Platform, and Two Horses, see Notice at the Liverpool and Manchester Railway Office (Shops, Stores, Warehouse, and Luggage, Liverpool), and the Local Post for the Manchester Shipping Office on the North Wales Railway may be found on application at the Liverpool and Manchester Office.
Liverpool 12th August 1841.

REDUCED facsimile OF A
TIME TABLE ISSUED BY THE
LIVERPOOL AND MANCHESTER
RAILWAY IN AUGUST, 1841.

"The wheels are made 4 ft. 8½ in.—the small pair 2 ft. 6 in."

"NEWCASTLE,
August 31st, 1829.

"My DEAR SIR,—After the stays were put in we tried the boiler up to 120 lbs. per square inch, when I found it necessary to put in two more stays in order to make the ends withstand 150. This would be totally unnecessary if the fixed pressure for trial were 120. We can, however, make it stand the required pressure, although I scarcely think it prudent from what I stated in my last. The putting in of these stays has put the trial of the engine off until Wednesday. The mercurial gauge is nearly finished, it will look well—the pipes being of wrought iron have taken more time than I expected. The wheels of the engine are painted in the same manner as coach wheels, and look extremely well. The same character of painting I intend keeping up throughout the engine, it will look light, which is one object we ought to aim at. Mr. Burstall, junior, is in Newcastle, I have little doubt for the purpose of getting information. I was extremely mystified to find that he walked into the manufactory the morning and examined the engine, with all the coolness imaginable, before we discovered who he was. He has, however, scarcely time to take advantage of any hints he might catch during his transient visit. It would have been as well if he had not seen anything. I will write you on Wednesday evening or Thursday morning.

Yours faithfully,
(Signed) ROBT. STEPHENSON."

"NEWCASTLE-ON-TYNE,
September 5th, 1829.

"DEAR SIR,—I daresay you are getting anxious, but I have delayed writing you until I tried the

engine on Killingworth Railway. It appeared prudent to make an actual trial and make any alterations that might present themselves during an experiment of that kind. The fire burns admirably, and abundance of steam is raised when the fire is carefully attended to. This is an essential point because a coke fire when let down is bad to get up again; this rather prevented our experiment being so successful as it would have been throughout. We also found, from the construction of the working gear, that the engine did not work so well in one direction as in the other. This will be remedied. The mercurial gauge was not on, not from any defect, but from my wish to get the engine tried. We started from Killingworth Pit with five wagons, each weighing 4 tons. Add to this the tender and 40 men, we proceeded up an ascent of 11 or 12 feet per mile at 8 miles per hour after we had fairly gained our speed. We went 3 miles on this railway, the scale of ascents and descents my father knows—on a level part laid with malleable iron rails we attained a speed of 12 miles per hour, and without thinking that I deceived myself (I tried to avoid this), I believe the steam did not sink on this part. On the whole, the engine is capable of doing as much, if not more, than set forth in the stipulations. After a great deal of trouble and anxiety we have got the tubes perfectly tight. As requested by you in Mr. Locke's letter, I have not tried the boiler above 120 lbs. The mercurial gauge and some other knickknacks are yet to be put on. On Friday next the engine will leave by way of Carlisle, and will arrive in Liverpool on Wednesday week.

I am, dear Sir,

Yours faithfully,

(Signed) ROBT. STEPHENSON."

	TONS. CWT. QRS.		
The weight of the engine complete	3	10	1
Water, say		15	0
	<hr/>		
Tons ...	4	5	1
	<hr/>		

We will not follow the *Rocket* round on its tedious journey from Newcastle to Liverpool, first by wagon to Carlisle and then by ship to the Mersey. The day fixed for the great trials was the 1st October, but in order to give the competitors every chance of having their engines thoroughly tuned up and in proper working order, the directors altered the date to the 6th. At last the fateful day arrived, and great was the excitement in Liverpool and the surrounding districts; the course chosen for the trials was a fairly level stretch of line near Rainhill, and if we are to believe prints of the period, the scene very closely resembled a race meeting, with its jostling crowds and grand stand gay with flags and bunting, while all the beauty and fashion of the neighbourhood were present in their private carriages ranged along the side of the line, but apart from the mere sightseers, the course was crowded with engineers and mechanics who had come to see for themselves if the locomotive was to be the conqueror. The judges were Rastrick, who subsequently built much of the London, Brighton and South Coast line; John Kennedy, more noted in textile than railway engineering; and Nicholas Wood, an inventor and one of the earliest writers on railway subjects. The course was somewhat under 2 miles of level line, and each competitor had to make twenty trips along it at not less than 10 miles per hour; at the end of ten trips fuel and water was allowed to be replenished; thus the test was made to resemble as much as possible a journey from Liverpool to Manchester, where fuel and water would naturally be taken up, and thence

back to Liverpool. It is somewhat surprising that only four locomotives were entered for the competition, but is probably due to the short notice given before the trials, some budding engineers very likely not attempting to build a locomotive in the short time at their disposal, while others probably started building and either did not finish in time or else found their creations so unreliable as to be not worth entering. The four competitors that put in an appearance were:—

1. Messrs. Braithwaite & Ericsson's *Novelty*.
2. Mr. Timothy Hackworth's *Sanspariel*.
3. Messrs. R. Stephenson & Co.'s *Rocket*.
4. Mr. Burstall's *Perseverance*.

It is true that another engine was entered, but it was an "engine" of such a kind that it was disqualified and not allowed to compete. It was called the *Cycloped*, was shown by Thomas Brandeth, and really was a most ingenious contrivance worked by a horse on a frame. Although not allowed to compete, the *Cycloped* gave an exhibition in which it managed to travel at 6 miles an hour. We will give a few more details of the competitors, as they mark such an important epoch in the history of the locomotive, and it can be said without much exaggeration that they practically form "Volume No. 1 of the Locomotive Stud Book."

The *Novelty* was well named, if nothing else; she was a light engine without any tender, carrying the water and fuel on the same wheels as the engine. She obtained her draught by means of a bellows, and was driven by means of two vertical cylinders, 6 in. diameter by 12 in. stroke, which acted by cranks and connecting rods on a crank shaft carrying driving wheels 4 ft. 2 in. diameter. The *Novelty*, or rather what remains of her, is now at South Kensington. The *Sanspariel* was found to be overweight for a four-wheeler, but the judges allowed her to compete. She had two vertical

cylinders, 7 in. diameter by 18 in. stroke, acting on four coupled wheels of 4 ft. 6 in. diameter. The *Rocket* we have already heard all about in Robert Stephenson's letters.

The *Perseverance* was a remarkable engine built by Burstall. It had two vertical cylinders placed between the driving wheels, which acted on cog wheels, the boiler had a steam jacket, and the exhaust steam passed through the water tank, first heating the water and then through a pipe along the top of the boiler into the chimney. The *Rocket* was the first engine to perform, and it ran a short experimental trip of 12 miles in about 53 minutes, but no very serious business was done the first day; however, both the *Novelty* and the *Sanspareil* made exhibition trips, the former, it is interesting to note, was driven by Charles, who built the great Exhibition of 1851, and it attained the rate of 24 miles an hour. Next day both the *Novelty* and *Sanspareil* were found to be *hors de combat*, much to the disappointment of the vast gathering of spectators. However, the *Rocket* was again brought out and made exhibition runs; with a coach attached containing 30 people she attained a speed of from 24 to 30 miles per hour. On the 8th the *Rocket* proceeded to do its trials as laid down in the conditions. The time occupied from lighting the fire until the pressure stood at 50 lbs. per square inch was 57 minutes. The *Rocket* then started on her memorable journey with a load of wagons of some 13 tons, the first half of the programme, ten trips backwards and forwards, was performed in 1 hour 48 minutes. The second ten trips, however, took a little longer, these being done in 2 hours 3 minutes. The average speed of the whole journey was 15 miles per hour, and the maximum speed was 29 miles per hour, truly a wonderful performance. This performance of the *Rocket* proved to the assembled crowds the

practicability of the steam locomotive, and after this it was apparent to all on what sort of method of locomotion the board of directors would decide, and thereafter there was very little talk about stationary engines and ropes. Although this performance was considered marvellous, the premium was not yet won, for the other competitors had still to show what they could do. On the 10th the *Novelty* made an attempt but broke down, and the *Sanspareil* also broke down when undergoing its trials. The *Perseverance* had refused to proceed faster than at the leisurely pace of 5 to 6 miles an hour, and so at an early stage of the proceedings it had been withdrawn. The *Rocket* was thus the only engine that carried out all the conditions, and it had done far more than was provided for by the conditions, while the other engines had signally failed to accomplish anything approaching the stipulations, accordingly the premium of £500 was awarded to the *Rocket*. To show what the *Rocket* could do Stephenson again brought her out, and attained the unprecedented speed of 35 miles per hour.

All this time the work of constructing the line was being pushed forward with the utmost vigour, and even the great embankment across Chat Moss was so far advanced by January 1st, 1830, that a single line of rails was opened, and on that day the famous *Rocket* drew a train of directors and friends along the greater part of the line between Manchester and Liverpool. The first entire journey, however, between the two towns was made on June 14th, when a new locomotive, the *Arrow*, driven by George Stephenson himself, drew a train from Liverpool to Manchester and back, and on the return journey crossed Chat Moss at a speed of 27 miles per hour, only taking 90 minutes for the journey. Great preparations were now being made for the opening of the line, and when

one considers that this was the first line to be worked as a public railway, one can imagine the well-nigh insuperable obstacles which confronted the officers of the line. Every man on the line had to be thoroughly instructed in his duties, and as the best means of accomplishing this frequent trial trips took place. At length everything was in readiness, and the opening was announced to take place on September 15th, 1830, and as befitted such an event the opening ceremony was planned to be in keeping with the important national character of the undertaking. On the appointed day crowds of sightseers thronged the line all the way from Manchester to Liverpool, eager to get a view of the opening trains. At Liverpool about six hundred people started on the initial trips, and these were accommodated in eight trains. George Stephenson travelled on the footplate of one of the new engines, the *Northumbrian*, his brother Robert was on the *North Star*, his son Robert on the *Phoenix*, Joseph Locke was on the *Rocket*, Thomas Gooch, Stephenson's Secretary, on the *Dart*, Anthony Harding on the *Meteor*, Swanwick on the *Arrow*, and William Allcard on the *Comet*. The enthusiasm was immense, and all along the first part of its journey the procession received a great ovation and was cheered again and again. Amongst the distinguished people taking part in the procession were the Duke of Wellington, Sir Robert Peel and Mr. Huskisson, one of the members for Liverpool, who had strongly supported the Liverpool and Manchester Bill when before Parliament. But a great tragedy was ahead, for amid all the rejoicing the day was destined to see the first fatality to a railway passenger. It came about in this way: About 17 miles from Liverpool, at Parkside, the engines stopped to take water, and the train drawn by the *Northumbrian*, containing the "Iron Duke," had been drawn on one side in order

to allow him a better view of the procession. Mr. Huskisson having got down from his carriage was walking along the line when the Duke beckoned him to his side. Mr. Huskisson went up to him and they were shaking hands, when a cry went up from the horrified onlookers, who perceived a train bearing down on Mr. Huskisson. The latter became confused, and in attempting to avoid an open door of one of the carriages was caught and hurled down

THE OLIVE MOUNT CUTTING AND TUNNEL, LIVERPOOL, AT THE
PRESENT TIME.

by the *Rocket*, the engine of the approaching train. Although not killed it was apparent that Mr. Huskisson was very seriously injured, and he was immediately conveyed by the *Northumbrian*, driven by George Stephenson, to Eccles, 15 miles in 25 minutes, where he expired the same evening. The rejoicings were now changed into sorrow, and many of the people in the procession were in favour of returning straightway to Liverpool; in

order, however, not to disappoint the immense crowds which had congregated around the Manchester end of the line it was decided to proceed to Manchester. A gloom had now settled over the proceedings, and as the procession neared Manchester it seemed to increase, and a very different entry was made from that which had been pictured. Amidst a deluge of rain and thunder the journey was completed, and the grey leaden skies above were a fitting roof for the spiritless proceedings below, while to make matters even worse the Duke of Wellington met with a hostile reception, scurrilous placards being exhibited, and insults, indeed in some cases even missiles being hurled at the coach in which the Duke was riding. At Manchester they did not wait to take part in the festivities which had been prepared, but returned to Liverpool almost immediately, where they arrived late at night thoroughly dispirited and dejected. The next day the line was opened for public traffic, and the first train from Liverpool to Manchester contained 140 passengers, the journey occupying two hours. On December 4th the first through journey between Liverpool and Manchester was made by a goods train. The train was drawn by the *Planet* and comprised 18 wagons, which contained 135 bales of America cotton, 200 barrels of flour, 63 sacks of oatmeal, and 34 sacks of malt, weighing 51 tons 11 cwt. 1 qr., to which must be added the weight of the wagons, etc., tender, and fifteen persons on the train, making in all 80 tons, not counting the weight of the locomotive. The time occupied on the journey was 2 hours 54 minutes which, however, included three stops of 5 minutes each. It is on record that this same engine, the *Planet* once brought a party of voters from Liverpool to Manchester in 60 minutes.

The Liverpool and Manchester Railway was from the start an unqualified success, its shareholders

receiving 8 per cent., which afterwards rose to 9 and 10. Quite the most extraordinary feature was the enormous success of the passenger service from the very beginning. We have seen how originally the Liverpool and Manchester was projected almost entirely as a goods line; it had been estimated that the line would earn about £10,000 a year for passenger traffic, whereas during the first year the receipts for passengers were £101,829. It had also been estimated that the receipts for goods traffic would be £50,000 a year, but by 1833 the actual amount was £80,000.

Now let us look at the line itself as it appeared after the opening. The rails were fish-bellied iron rails weighing 35 lbs. per yard, but these were soon found to be too light and heavier ones were introduced. These rails rested on stone blocks, but on soft or peaty ground, such as Chat Moss, the rails rested on oak sleepers. The signalling arrangements were of course very crude, consisting of a flag by day and a lamp by night, held by a pointsman, who looked more like a policeman than a railway official, with his long-tailed coat and tall hat. This system was not very satisfactory, and about four years after the opening poles were provided on which the lamps were placed.

There appears to have been two classes of trains which were run quite separately. The first class carriages were small four-wheeled affairs, very much resembling the old stage coaches, and rejoicing in some topical or apposite name, as 'Wellington,' 'The Times,' 'Experience,' 'The Traveller,' 'The Victory,' etc. The 'coaches' provided for the second class passengers were little better than cattle trucks, with no seats, no partitions, and sides about 3 feet high; indeed, it was no uncommon thing for passengers to fall out of these trucks. Passengers were 'booked' just as they were for the stage coaches, and their names and destination all written in the

book, and it was some considerable time before tickets were introduced ; everything connected with the passenger department was copied from the coaches, and for some time a trumpeter played a tune on the horn as the trains departed from the terminal stations. The Post Office was not slow to take advantage of the new mode of travelling, and soon after the opening the mails between the two towns were transferred to the Railway. In 1831 Stephenson delivered two improved engines to the Liverpool and Manchester Railway, the *Goliath* and the *Samson*, and the latter shortly after it arrived astonished everyone by drawing a train of 150 tons at a speed of nearly 20 miles per hour. The enormous success of the Liverpool and Manchester Railway soon lead to other lines being projected to places round about, and lines were soon either authorised or opened to Warrington, Wigan, Kenyon, Bolton and Runcorn Gap. The Liverpool and Manchester continued on its prosperous career and gradually enlarged its system, and it was not very long before extensions into the centres of Manchester and Liverpool were undertaken.

We will conclude this chapter on the Liverpool and Manchester Railway by an account, written by Fanny Kemble, the celebrated actress, of a trip on the line which she made in company with George Stephenson: "We were introduced to the little engine which was to drag us along the rails. She (for they make these curious little fire horses all mares) consisted of a boiler, a stove, a small platform, a bench, and behind the bench a barrel containing enough water to prevent her being thirsty for 15 miles—the whole not bigger than a common fire engine. She goes upon ten wheels, which are her feet, and are moved by bright steel legs called pistons ; these are propelled by steam, and in proportion as more steam is applied to the upper extremities (the hip joints, I suppose) of these

pistons, the faster they move the wheels, and when it is desirable to diminish the speed, the steam (which unless suffered to escape would burst the boiler) evaporates through a safety-valve into the air. The reins, bit, and bridle of this wonderful beast is a small steel handle, which applies or withdraws the steam for the legs or pistons, so that a child might manage it. The coals, which are its oats, were under the bench, and there was a small glass tube affixed to the boiler, with water in it, which indicates by its fulness or emptiness when the creature wants water, which is immediately conveyed to it from its reservoirs. There is a chimney to the stove, but as they burn coke there is none of the dreadful black smoke which accompanies the progress of a steam vessel. This snorting little animal, which I felt rather inclined to pat, was then harnessed to our carriage, and Mr. Stephenson having taken me on the bench of the engine with him, we started at about 10 miles an hour. You can't imagine how strange it seemed to be journeying on thus, without any visible cause of progress other than the magical machine with the flying white breath and rhythmical, unvarying pace, between these rocky walls, which are already clothed with moss and ferns and grasses, and when I reflected that these great masses of stone had been cut asunder to allow our passage thus far below the surface of the earth, I felt as if no fairy vale was ever half so wonderful as what I saw. Bridges were thrown from side to side across the top of the cliffs, and the people looking down upon us from them seemed like pigmies standing in the sky. We had now come 15 miles, and stopped when the road traversed a wide and deep valley. Stephenson made me alight and led me down to the bottom of the ravine, over which, in order to keep his road level, he has thrown a magnificent viaduct of nine arches, one of which is 70 feet high,

through which we saw the whole of this beautiful little valley. He explained to me the whole construction of the steam engine, and said he would soon make a famous engineer of me, which, considering the wonderful things he has achieved, I dare not say is impossible. His way of explaining himself is peculiar but very striking, and I understood without difficulty all that he said to me. We then rejoined the rest of the party, and the engine having received its supply of water, the carriage was placed behind it, for it cannot turn, and was set off at its utmost speed, 35 miles an hour, swifter than a bird flies (for they tried the experiment with a snipe). You cannot conceive what that sensation of cutting the air was, the motion is as smooth as possible too. I could either have read or written; and as it was I stood up with my bonnet off and drank the air before me. At one time, to exhibit the power of the engine, having met another steam carriage which was unsupplied with water, Mr. Stephenson caused it to be fastened in front of ours; moreover, a wagon laden with timber was also chained to us, and thus propelling the idle steam engine and dragging the loaded wagon which was beside it, and our own carriage full of people behind, this brave little she-dragon of ours flew on. Further on she met 'three carts,' which, being fastened in front of her, she pushed on before her without the slightest delay or difficulty. Now for a word or two about the master of these marvels, with whom I am horribly in love. He is a man of from fifty to fifty-five years of age, his face is fine, though careworn, and bears an expression of deep thoughtfulness; his mode of explaining his ideas is peculiar and very original, striking and forcible; and although his accent indicates strongly his North country birth, his language has not the slightest touch of vulgarity or coarseness. He has certainly turned my head."

CHAPTER II.

The London and Birmingham Railway.**1831—1846.**

Even before the opening of the Liverpool and Manchester Railway there was a proposal brought forward to connect London with Birmingham, and the line was actually surveyed by Rennie, who proposed to take his line through Oxford and Banbury; a competitive scheme was also brought forward, a route through Coventry being projected by Francis Giles. At first these two projects fought fiercely amongst themselves, and great was the rivalry between them; eventually, however, wiser counsels prevailed, the two factions combining their interests and agreeing to unite for the common cause of supplying railway communication between London and Birmingham. The difficulty for the directors to solve now was which route to adopt; accordingly they settled to call in George Stephenson and request him to advise them. Stephenson, after carefully examining the country, decided in favour of Giles' route *via* Coventry, which the promoters thereupon determined to adopt; soon afterwards they offered Stephenson the post of joint engineer, but the latter, fearing possible friction with his colleague, refused the offer. The promoters, loath to lose the services of such an authority, made him another offer, and the result was that Stephenson and his son Robert were appointed the engineers for the undertaking.

In January, 1831, the company issued its first circular, although the plans were not yet far advanced enough to lay before Parliament. In this document

the chief advantages of the line were stated to be :
 “First, the opening of new and distant sources of supply of provisions to the metropolis. Second, easy, cheap and expeditious travelling. Third, the rapid and economical interchange of the great articles of consumption and of commerce, both internal and external ; and lastly, the connection by railways of London with Liverpool (the Grand Junction from Birmingham to the Liverpool and Manchester Railway was under projection at this time), the rich pastures of the centre of England, and the greatest manufacturing districts, and through the port of Liverpool to afford a most expeditious communication with Ireland.” The following estimates appeared in the circular :—

ESTIMATED EXPENSES.

Excavations, embankments, and tunnels	£1,098,000
Masonry, including bridges and walling	
in depôts 	334,672
Rails, etc. 	316,368
Ballasting and fencing	205,920
	<u>£1,954,960</u>
10 per cent. for contingencies, including engineering, surveying, Parliamentary, conveyancing and other law charges	£195,496
Land and compensation 	250,000
Total estimate	<u>£2,400,456</u>

ESTIMATED REVENUE.

Passengers 	£331,272
Goods 	339,830
	<u>£671,102</u>

The project provoked a storm of opposition, the canals, landowners and other vested interests were up in arms against it, just as they had been in the case of the Liverpool and Manchester, and similarly

all sorts of baseless rumours and calumnies were spread about to damage the railway ; all along the proposed course of the line, from Birmingham to London, meetings were held at which resolutions hostile to the scheme were passed. Robert

THE DORIC ARCH AT ENTRANCE TO EUSTON STATION.

Stephenson has related an incident which vividly shows the absurdity of much of the opposition. He had called on Sir Astley Cooper, the eminent surgeon, through whose property at Berkhamstead the line was planned to pass, in order to try to

conciliate him ; but it was of no avail, no compromise could be arranged, Sir Astley was opposed to the principle of railways. " You are proposing," said he, " to cut up our estates in all directions for the purpose of making an unnecessary road. Do you think for one moment of the destruction of property involved by it? Why, gentlemen, if this sort of thing be permitted to go on, you will in a very few years destroy the nobility." As Robert Stephenson left the worthy surgeon he remarked to his companion, " Well, it is really provoking to find one who has been made a ' Sir ' for cutting that wen out of George the Fourth's neck, charging us with contemplating the destruction of the nobility because we propose to confer on him the benefits of a railroad."

The Bill was at length prepared and placed before Parliament, and in 1832 it came before a Committee of the House of Commons. The promoters met with a lot of opposition, and a great array of evidence on both sides was produced, but the evidence clearly proved the necessity for improved communications between London and the North, and the Bill had a victorious progress through the Commons, passing the Committee and afterwards its third reading by a large majority. The Bill then went up to the Lords, where the case had to be gone through afresh ; on the first and second readings no division was taken, but on the third reading it was rejected on the motion of Lord Brownlow. The Bill had failed, and the reason was the opposition of the landowners ; the noble Lords made no secret of it, for they passed the following resolution :—" Resolved that the directors had not made out a case which would warrant the forcing of the proposed railway through the lands and properties of so great a proportion of distinguished landowners and proprietors."

As we have seen previously, the directors in the

prospectus had allotted £250,000 for land and compensation; and now profiting by their experience they increased this item to £750,000 before they re-introduced the Bill, thereby conciliating a large proportion of the "distinguished landowners and proprietors." The Bill was introduced again in the next session, 1833, and with much of the previous opposition thus judiciously conciliated, it secured an almost bloodless victory. But the Company had had to pay a heavy price, and it was now found that the preliminary expenses alone had amounted to £72,869, which was equal to a little over £650 per mile of line, whilst for much of the land—purely agricultural—it had agreed to pay about £320 per acre.

As a sample of the opposition which the Company had to buy off, the following is a specimen: "A reverend gentleman who complained that his privacy had been ruined; that his daughters' bedroom windows were exposed to the unhallowed gaze of the men working on the railway; that he must remove his family to a watering-place, to enable him to do which he must engage a curate. All this was considered in the compensation demanded, and paid; yet no curate has been engaged, no lodgings at a watering-place taken. The unhappy family have still dwelt in their desecrated abode, and borne with Christian-like resignation all the miseries heaped upon them. The gilding of the pill, it seems, has rendered it palatable, and we have no doubt that if his daughters' rooms have a back window as well as a front one, he would be exceedingly glad if a railroad was carried across that at the same price."

In the original Act was a clause which enacted that out of the 24 directors at least 10 must reside within 20 miles of London, and at least 10 within 20 miles of Birmingham; this peculiar clause, however, was repealed in 1835. In

view of the fact that the London and Birmingham Railway was, for all practical purposes, the first main trunk line of the world, it might be interesting to give in full a list of the first directors, which contained many names of high repute in the commercial and banking world. We will therefore proceed to give them in alphabetical order:—George Peaches Barclay, Edmond Calvert, William T. Copeland, Edward Cropper, James Foster, William Francis, Robert Garnett, George Carr Glynn, Pascoe St. L. Grenfell, Daniel Ledsam, Joseph Ledsam, John Shaw Lefevre, James Pearson, William Philipson, John Prevost, Theodore Rathborne, Henry Rowles, Isaac Solly, Timothy Smith, John Sturge, Thomas Tooke, John Turner, Joseph Walker and Henry Warre.

In the same session the Grand Junction Railway was also authorised by Parliament, which railway proposed to construct a line from Birmingham through Staffordshire and Cheshire to Warrington, in Lancashire, whence, by means of the already authorised Warrington and Newton Railway, it would form a junction with the Liverpool and Manchester Railway. The passing of the Grand Junction Bill greatly improved the prospects of the London and Birmingham, as it promised to complete railway communication between London and Manchester, Liverpool and South Lancashire. As the works on the line were very heavy, the directors lost no time in undertaking the construction of the line, and the first 3 contracts for 21 miles near London were let early in 1834; soon afterwards 21 miles more being let, and soon 80 miles of line were under construction.

The length of railway to be constructed between Birmingham and London was $112\frac{1}{2}$ miles, and it contained engineering features far greater than anything previously attempted in railway construction. Many of these works were necessary

to secure an easy gradient, for the Stephensons, both father and son, were great believers in easy gradients, and most of their lines were laid out on this plan, a boon to-day for which the railways that possess these roads are heartily thankful. The ruling gradient for the line was fixed at 1 in 330,

ROBERT STEPHENSON.

the line rising to a height of 308 feet, and the gradient changing 44 times, 54 miles being uphill, 44 downhill, and 14 level. It was originally intended to have the London terminus at Camden, but, fortunately, it was afterwards decided to extend it to Euston; it is said that Stephenson

went so far as to propose an extension to the Strand, and although the cost would have been very high in the first instance, there is no doubt that if this extension had been carried out the present shareholders of the Company would have had no cause to regret it. The extension to Euston necessitated a somewhat steep gradient of 1 in 70, but it was decided to work this by stationary engines, and it is interesting to note that this method of locomotion was used after the opening up till the year 1844.

The building of the railway was divided amongst 30 contractors, and it gives some idea of the vastness of the works when it is known that 10 of the 30 failed, and the Company had to take much of the work into its own hands and complete it itself.

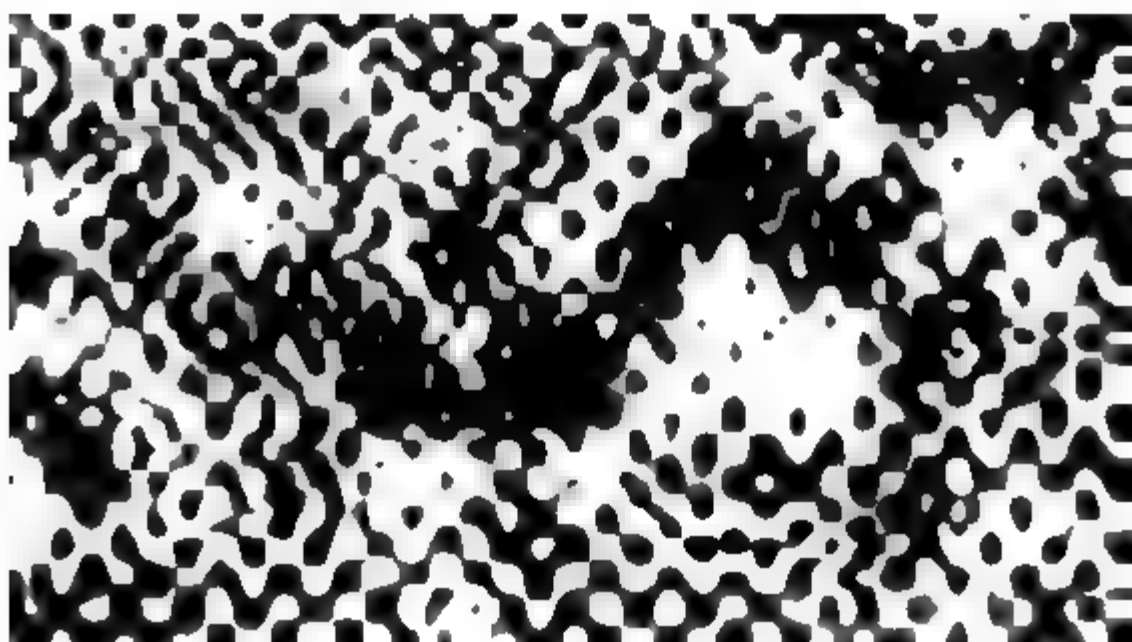
The works on the line which promised to be the largest, were the tunnels at Kilsby and Primrose Hill and the cuttings at Tring, Denbigh Hall, Blisworth and Roade, and perhaps the embankments at Wolverton and near Tring, while the cuttings at the London end through the London clay, although perhaps not comparable in magnitude to the foregoing, proved to be by no means light tasks. The cutting at Tring is an immense gash in a great chalk ridge. For over $2\frac{1}{2}$ miles it has been sawn out of the chalk, while for over a quarter of a mile it is nearly sixty feet deep. To make this cutting it was necessary to excavate over a million and a-half cubic yards of material, the latter now forms the embankment north of the cutting which extends for about six miles. Another large embankment is near Wolverton, where the railway crosses the valley of the Ouse; this proved to be a very difficult part to construct. Le Count tells us the following about it: "There seemed to be no end to the vagaries of this unhappy embankment. There was

a portion of alum shale in it, which contained sulphuret of iron. This becoming decomposed, spontaneous combustion ensued, and one fine morning we had the novel sight of a fifty feet embankment on fire, sleepers and all, to the great surprise of a host of beholders. The inhabitants of all the neighbouring villages turned out, of course, in no small amaze on the occasion, and various were the contending opinions as to the why and the wherefore. Some said the company were hard up for cash, and were going to melt some of the rails; others, that it was a visitation of Providence, like the 'Tower of Babel.' At last a village Solon settled the point. 'Dang it,' said he, 'they can't make this here railway arter all; and they have set it afire to cheat their creditors.'"

The cutting at Roade, near Blisworth, was one of the biggest works of the line, and proved too much for the contractor, who was unable to finish it; eventually the cost of completing it being about £130,000 more than the contract price. The cutting is about one and a-half miles long, and in parts is nearly 70 feet deep, and is composed of hard rock and clay, while in parts were found shale full of water, which necessitated constant pumping. For eighteen months the contractor attempted to carry out his works, but at length was forced to give it up; whereupon the company itself took over the work, pumps were installed and 800 men employed on the job; altogether it is estimated that about a million cubic yards of material was excavated, and about 300,000 lbs. of gunpowder used in the blasting operations. (It is somewhat interesting to note that in 1881 the line was quadrupled, and a further half million cubic feet excavated). The clay was found to be so inclined to slip that large retaining walls had to be constructed, and as a further support these were joined together by an inverted arch under the road bed.

Not very far north of Roade is Kilsby, where is situated the tunnel which was undoubtedly the greatest work on the London and Birmingham Railway. The Kilsby Tunnel was another of these ill-fated sections which ruined its contractor. The original contract price was £99,000, but the contractor soon had to give it up, and it is generally said that the shock killed him; the company itself afterwards completed it, but at a cost of some £300,000. The Kilsby Tunnel is about 2,400 yards long, and is at an average depth of some 150 feet. Before the contract was let trial shafts were sunk in order to find out the nature of the formation, but somehow they missed a very extensive quicksand, which was soon discovered however, after the tunnel was commenced, by the roof suddenly collapsing and a stream of water flooding the workings. The contractor was released, and for some time all work on the tunnel was suspended, many people thought it a hopeless task, and strongly advocated the complete abandonment of the works. However, the two Stephensons held a consultation, and decided to proceed with the work. Powerful new pumps were erected, and the work of pumping it dry was commenced. For some time it seemed to have little effect, but at length, after eight months pumping, at the rate of 2,000 gallons a minute, active work on the tunnel was once more resumed. Thirteen million bricks were used in the tunnel, and 1,300 men were employed night and day. The cost of the tunnel came to £125 per yard. All the trouble and expense would have been avoided but for the idiocy of the inhabitants of Northampton, who refused to allow the railway to come near the town, as had been originally intended; but it was not very long before they saw the folly of their ways, for a few years later they humbly petitioned the company to build a branch line into their town. But Kilsby was by no means the only tunnel

on the line, for altogether there were eight, whose total length was 7,336 yards. After Kilsby, the next largest was the Primrose Hill, at the London end of the line, with a length of about 1,164 yards. This tunnel had to be bored through the London clay, and proved a very tiresome undertaking, for the clay, swollen by its contact with air, forced the mortar through the joints of the brickwork and exerted such a pressure on the bricks, that they kept chipping. This was successfully overcome by putting in an extra thick lining of 27 inches of the



ARRIVAL OF A TRAIN AT EUSTON SQUARE STATION.

(The locomotive was detached at Camden (Chalk Farm) and the train ran down to the terminus by gravity).

hardest bricks made, set in Roman cement. At Watford there was a tunnel through the chalk of about 1,800 yards, while smaller tunnels also existed at Stowe Hill, Northchurch and Lindslade. Absurd as it may seem nowadays, tunnels in the early days were not popular and were looked at askance by many people; Sir Anthony Carlisle announced that "tunnels would expose healthy people to colds, catarrhs and consumption," while another medical man asserted that "the

deafening peal of thunder, the sudden immersion in gloom, and the clash of reverberated sounds in a confined space combine to produce a momentary shudder or idea of destruction, a thrill of annihilation." That the prejudice against tunnels was very general is shown by the following quotation from Le Count: "So much has been said about the inconvenience and danger of tunnels that it is necessary, whilst there are yet so many railways to be called into existence to state that there is positively no inconvenience whatever in them, except the change from daylight to lamp-light. This matter was clearly investigated and proved upon the London and Birmingham Railway, a special inspection having been there made in the Primrose Hill Tunnel by Dr. Paris and Dr. Watson, Messrs. Lawrence and Lucas, surveyors, and Mr. Phillips, lecturer on chemistry, who reported as follows: 'We, the undersigned, visited together on the 20th of February, 1837, the tunnel now in progress under Primrose Hill with the view of ascertaining the probable effect of such tunnels upon the health and feeling of those who may traverse them. The tunnel is carried through clay and is lined with brickwork. Its dimensions, as described to us, are as follows: height 22 feet, length 3,750 feet, width 22 feet. It is ventilated by five shafts from 6 to 8 feet in diameter, the depth being 35 to 55 feet. The experiment was made under unfavourable circumstances; the western extremity being only partially open, the ventilation is less perfect than it will be when the work is completed; the steam of the locomotive engine was also suffered to escape for twenty minutes, while the carriages were stationary near the end of the tunnel; even during our stay near the unfinished end of the tunnel where the engine remained stationary, although the cloud caused by the steam was visible near the roof, the air for

many feet above our heads remained clear and apparently unaffected by steam or effluvia of any kind, neither was there any damp or cold perceptible. We found the atmosphere of the tunnel dry and of an agreeable temperature, and free from smell; the lamps of the carriages were lighted and in our transit inwards and back again to the mouth of the tunnel, the sensation experienced was precisely that of travelling in a coach by night between the walls of a narrow street; the noise did not prevent easy conversation nor appear to be much greater in the tunnel than in the open air. Judging from this experiment and knowing the ease and certainty with which through ventilation may be effected, we are decidedly of opinion that the dangers incurred in passing through well constructed tunnels are no greater than those incurred in ordinary travelling upon an open railway or upon a turnpike road, and that the apprehensions which have been expressed that such tunnels are likely to prove detrimental to the health or inconvenient to the feelings of those who may go through them are perfectly futile and groundless.'” Le Count made some ingenious calculations which went far to prove that the construction of the London and Birmingham Railway was the greatest work ever undertaken in the history of the world. These figures at the time attracted the greatest attention; and they are of such interest that we will quote a paragraph in which they appear in the *Illustrated London News*: “This gentleman (Le Count) avers that the London and Birmingham Railway is the greatest public work ever executed either in ancient or modern time, not even excepting the Great Wall of China; or the great Pyramid of Egypt. The labour expended on the latter was equivalent to lifting 15,733,000,000 cubic feet of stone one foot high. The labour expended in constructing the London and Birmingham Railway gives a result

of 25,000,000,000 cubic feet of material lifted one foot high, or 9,367,000,000 cubic feet more than were lifted one foot high in the construction of the Pyramid. The labour of constructing the Great Pyramid was performed, according to Diodorus Siculus, by 300,000 men; according to Herodotus by 100,000 men, and it required for its execution twenty years. The London and Birmingham Railway was made by about 20,000 men in less than five years."

While the road was being constructed the board had many difficult questions to solve, and innumerable preparations to be made for the opening of such a large stretch of line. Great attention was paid to the securing of a satisfactory rail, the light fish-bellied rails of 35 lbs. per yard which had been adopted by the Liverpool and Manchester had proved themselves to be far too light in construction for the heavy traffic; so the board commissioned Mr. P. Barlow, a Fellow of the Royal Society, to conduct a series of experiments on the question, and he recommended the use of rails weighing 75 lbs. to the yard. This sort of rail was therefore adopted, but about this time iron suddenly rose about four pounds per ton, and it was estimated that the rise in price and the adoption of the heavier rails would entail an extra expenditure of over a quarter of a million sterling.

Even before the opening of the London and Birmingham, numberless schemes were brought forward for new railways, many of which promised materially to increase the traffic of the London and Birmingham. We have already seen that the Grand Junction was authorised in 1833, which proposed to connect the London and Birmingham with the Liverpool and Manchester, and by the passing of the Act for the North Union Railway in 1834 continuous railway communication was authorised from the metropolis to as far north

as Preston, and by the authorising of the Lancaster and Preston Junction Railway in 1837 the chain was still further extended to Lancaster. Many people talked of extending the communication to Scotland, but others said it would be quite impossible to make a line pay traversing such a barren and thinly populated part of the country. However, in 1835 the Grand Junction Railway went so far as to send their engineer, Joseph Locke, to survey the country and to settle on a practicable route for continuing the communication from Lancaster through Carlisle and on to Scotland and Glasgow, but it was some years before this latter project materialised. Whilst railways were thus steadily advancing north-westwards, railway projectors had by no means neglected the Midlands, and several lines had been authorised which promised to carry on railway communication north-eastwards. A line was authorised in 1836, under the title of Midland Counties Railway, which was planned to start at Rugby, on the London and Birmingham, and proceed through Leicester to Derby. Throwing out a branch to Nottingham, another line which secured its Act of Incorporation in this session was the Birmingham and Derby Railway, a railway whose title clearly indicates its object, whilst yet another important line was also authorised in the same session. This was the North Midland Railway, whose engineer was George Stephenson, and which proposed to connect Derby with Leeds. A short line, complementary to the latter, was also incorporated in 1836, under the title of York and North Midland, whose object was to link the City of York with the North Midland Railway. And even at this early period schemes were already being discussed for extending these railways beyond York and Newcastle to Berwick and Edinburgh, and rivalry

had already begun to exist between the two projected routes to Scotland. To the London and Birmingham all these authorised lines meant increased through traffic, and its directors viewed with pleasure, and in some instances even helped in the promotion of these new arteries from its stem. Thus, even before its opening, the London and Birmingham promised to provide a trunk route, not only to Birmingham, Manchester, and Liverpool, but to Preston and Lancaster in the

ONE OF THE ORIGINAL PASSENGER LOCOMOTIVES.

North-West, to Nottingham, Leicester, and Derby in the Midlands, and to York and Leeds and the contiguous districts. In 1835 was authorised a line that was destined in later years to become a powerful competitor to the London and Birmingham's successor, for in that year the Great Western Railway was authorised, but as yet it only proposed to connect London with Bristol, and, indeed, it was originally projected to connect with the line of the London and Birmingham at Kensal Green,

the original intention being that Euston should be the London terminus of the two railways. Fortunately for both, it was eventually decided otherwise, and the Great Western made Paddington their London terminus.

At length the London and Birmingham Railway was so far advanced as to admit of the opening of the first section, but although the whole line was constructed within the estimated period, the estimated cost had been greatly exceeded, for instead of costing £2,400,000, which was the original figure, it was found to have cost about £5,500,000, or £50,000 a mile, instead of £21,736, and even after allowing for such unforeseen contingencies as the difficulties at the Kilsby tunnel, the difference was immense. On the 1st of January, 1838, amid much festivity and rejoicing, the line was opened from London to Tring. On the 9th of April a further section was opened to Denbigh Hall, a station taking its name from a celebrated coaching inn, but which has since become known by the less euphonious name of Bletchley, and on the same date the section from Birmingham to Rugby was also opened, and a service given between Birmingham and London, the intervening section of some 35 miles between Rugby and Denbigh Hall being covered by the coaches of Messrs. Chaplin and Horne. The coaches were crowded and unable to deal with the large crowds travelling, and it is doubtful if either before or afterwards coaches ever enjoyed the same amount of patronage. The Coronation of Queen Victoria took place on the 28th June, 1838, and vast numbers of people flocked to the railway to be taken up to the Metropolis. The coaches between Rugby and Denbigh Hall were quite unable to deal with the increased traffic, a riot only narrowly being averted, and it is on record that as much as

£4 was paid by many persons for a seat on the coach on this short section, while it is even recorded that in one instance £10 was paid for a seat on a donkey cart. The missing link was, however, completed and opened on September 17th, 1838, when through communication was inaugurated between the capital and the metropolis of the Midlands. It is commonly reported that Dr. Arnold, of Rugby, standing on one of the bridges which spanned the line and watching some of the earliest trains on the railway, exclaimed, "I rejoice to see it, and to think that feudality is gone for ever; it is so great a blessing to think that any one evil is really extinct."

At the time of the opening, George Carr Glyn, the well-known banker, was the chairman of the undertaking. Ashlin Baxter was its first manager, while the locomotives were attended to by Edward Bury, who is chiefly famous for having been the first person to introduce locomotives with inside cylinders; he was also connected with the firm of Bury, Curtis and Kennedy, engine builders, of Liverpool.

We will now proceed to look at some of the most interesting features of this early railway; the terminus, as has been said previously, was situated at Euston Square, a square in North London (formerly known as Montgomery's Gardens), which took its name from the Fitzroy family, who were, and still are, Dukes of Grafton and Earls of Euston; although to modern ideas little better than a large shed, Euston Square was in those days considered a magnificent station, and was chiefly remarkable for its external classical architecture, its chief feature was undoubtedly the great Doric arch at the entrance, which, however, was not completed until 1839; it was designed by Hardwick and built of stone brought from Bramley Fall quarries in Yorkshire, at a total cost of about £35,000; it was, and for

that matter still is, considered a magnificent gateway, but there were many who criticised it as a waste of money, and some years afterwards, when the Great Northern Railway was about to build a London terminus, Sir William Cubitt declared that "a good station could be built at King's Cross for less than the cost of the ornamental archway at Euston Square." Be that as it may, the Euston archway is a fitting commencement for a great line, and the only pity seems that it is not situated on the Euston Road instead of in its present position. Nowadays, it has come to be linked inseparably in

FIRST CLASS CARRIAGE FOR NIGHT MAIL TRAIN,
LONDON AND BIRMINGHAM RAILWAY.

people's minds with the North-Western, and there is probably no better known piece of railway architecture in the world. Soon after the opening of the railway there was also opened the Euston Hotel, which was the first instance of a railway-connected hotel, a system that has since grown to such proportions that some railways, notably the London and North-Western and Midland, now rank with the Gordon Hotels, Spiers and Pond, etc., as the largest proprietors of hotels in the country.

The trains were hauled from Euston to Camden

by a stationary engine and an endless rope $2\frac{1}{2}$ miles long, these ropes cost £460 each. The working of this section is described in a paper of the time as follows: "As soon as the carriages at Euston are connected with each other and the passengers seated, the train is pushed forward by the porters to a bridge under Wriothsley Street; here it is attached to a large endless rope for the purpose of being drawn up an ascent on the line to Camden Town depôt, a distance of more than a mile. The gradients of the inclined portion of the railway vary from 1 in 62 and 1 in 366." The starting signal from Euston to the stationary engine at Camden was conveyed by an underground pneumatic tube, which worked a whistle. It is interesting to note that in 1837 Cooke and Wheatstone had carried out some successful experiments between Euston and Camden with their electric telegraph, and were anxious to extend it to the North, but for some reason the directors would not consent to this, and Cooke and Wheatstone took their invention to the Great Western Railway, where it was successfully taken up.

The intermediate stations call for little notice, most of the roadside stations being very modest affairs with no platforms, passengers entering or leaving the trains at both sides. The first station at Birmingham was situated in Curzon Street, and consisted of two long sheds, while externally the buildings were of the same classic architecture as at Euston Square. At all the stations on the line was exhibited the following notice: "The public are hereby informed that all the company's servants are strictly enjoined to observe the utmost civility and attention towards all passengers; and the directors request that any instance to the contrary may be noted by the offended party in a book kept at each station for that purpose, and called the Passengers' Note Book." But although the company's servants

were thus "strictly enjoined to observe civility," the passengers were by no means without obligations which they had to carry out, for the company's bye-laws were both numerous and stringent. The company announced that "upwards of 200 men are sworn in as special constables and policemen to enforce a proper attention to the rules of the establishment." The rules of the establishment were somewhat severe, and it was some time before the force of competition caused them to be relaxed; for instance, on no account were persons allowed on the platform to see their friends off, dogs were only conveyed at the minimum charge of ten shillings, whilst there was a rule "for preventing the smoking of tobacco and the commission of other nuisances."

The signalling arrangements at first were of a rather crude description, consisting of men with flags. We read in an official announcement, "Certain policemen are stationed at intervals along the line as signalmen, whose duty it is to remove obstructions and to warn an approaching train of any obstacle to its progress. The signals made use of in the daytime are small white and red flags, and at night lanterns with lenses similarly coloured." These "signalmen or policemen," as it calls them in the foregoing announcement, were dressed in uniform with top hats, and bore a striking resemblance to the London police of the period. The following were the instructions issued to them:—

"LONDON AND BIRMINGHAM RAILWAY.

"INSTRUCTIONS FOR THE USE OF THE SIGNAL
FLAGS.

"The white flag will indicate that no impediment exists to the free passage of the railway. And the red flag, on the contrary, that danger attends the advance of the train beyond the place where the signal is shown.

"*Attitude No. 1.*—Shows the red flag pointing to the rails to indicate that the train is to move slowly. *Attitude No. 2.*—Pointed across the line on which the train is moving : if a white flag, shows that the line is clear ; if a red flag, that the train is to stop. *Attitude No. 3.*—Brought to the shoulder as the train passes. *Attitude No. 4.*—The united flags held by the middle of the staff in the right hand above the head, across the line of railway, shows that assistance is wanted."

Coming to the rolling stock, we find there were three sorts of carriages provided—mail coaches, first class and second class carriages—the superior carriages very closely resembling the old stage coach bodies. Of these carriages the mail coaches provided accommodation for ten passengers and cost from £500 to £520 each. The first class carriages accommodated eighteen passengers and cost about £470 each, and the second class carriages had room for about twenty-four passengers and cost about £150 each. The accommodation is described in a footnote in the official announcements as follows:—

"The first class trains consist only of mail carriages, carrying four inside (one compartment of which is convertible into a bed carriage if required), and of carriages carrying six inside. The mixed trains consist of first class carriages carrying six inside, and of second class carriages carrying six inside, and of second class carriages open at the side, without linings, cushions, or divisions in the compartments. The night mail train consists of first class carriages carrying six inside, and of second class carriages closed and entirely protected from the weather. Each carriage has a small roof lamp inside by day and night."

The guards in these days had seats on the roof of the carriages, the latter place also being used for the conveyance of passengers' luggage, and for

a long time there was a class of men at Euston called "strappers," whose duty it was to look after and grease the straps on the top of the coaches which were provided for fastening the luggage.

The early locomotives of the London and Birmingham Railway do not call for much atten-

THE NORTH PORTAL OF KILSBY TUNNEL.

tion. The company started with thirty-six engines, constructed by six different makers. They were all four-wheeled engines with inside cylinders, and all were built to the same designs. Although the engines belonged to the Railway Company they were let to Edward Bury, who contracted to keep

them in repair for three years and to provide the company with motive power at an inclusive price per mile.

The original service between Birmingham and London consisted of nine through trains daily in both directions. Of these the mail trains were naturally the "crack" trains of the day; these departed from Euston at 9.30 a.m. and from Birmingham at 8.30 a.m., and occupied five hours on the journey of $112\frac{1}{2}$ miles, stopping on the way at Tring, Wolverton, Weedon, and Coventry; there was, in addition, one first class train in either direction, also taking five hours for the journey, but making more stoppages *en route* than the mail, and calling at Watford, Tring, Leighton, Wolverton, Blisworth, Weedon, Rugby, and Coventry. Five mixed trains performed the journey in $5\frac{1}{2}$ hours, whilst the "slow" trains performed the journey in about $8\frac{3}{4}$ hours. As the station of the London and Birmingham Railway at the latter town adjoined that of the Grand Junction, many of the trains had connections for Manchester, Liverpool, and the North. One of the most curious features of these early services was the fact that higher fares were charged by the night trains, the reason for this, presumably, being to recoup the company for the extra cost of illuminating the coaches and stations.

From the very first the London and Birmingham Railway was a great financial success, and this was all the more remarkable when one considers that the first estimated cost of construction had been doubled; in the estimated receipts the passenger traffic had been valued at £331,272, but during the first year the receipts from passengers were over £500,000. Curiously enough, the goods traffic, which had been estimated at £339,830, fell very far short of this figure, only yielding some £90,000 during

the first year, and, indeed, it was some time before the receipts from goods came up to the original estimate. The line was, however, very efficiently and economically worked, and during the second half of 1839 the working expenses only amounted to a fraction over 37 per cent. of the gross receipts. The result of all this was that the shareholders were in a very good position from the first, and during 1839 the dividend was

THE WOLVERTON VIADUCT.

8 $\frac{5}{8}$ per cent., while the next year it was 8 $\frac{7}{8}$, and in 1841 it reached 10 per cent.

Railways having been successfully inaugurated, new railways and extensions soon began to be projected all over the country, and it was not very long before lines began to be opened around about the London and Birmingham Railway, which were designed as "feeders" to the trunk system, for as yet no serious competition was threatened. An independent undertaking, under the title of Aylesbury Railway Company, was promoted to connect the town of Aylesbury with the London and Birmingham

at Cheddington, and on the 15th June, 1839, the line was opened amidst great local rejoicings. It was a great day in the history of Aylesbury, and the opening ceremony included bands, banquets, a general holiday, and most of the other accompaniments of these early railway openings. Another independent line connecting with the London and Birmingham was opened this year. This was the Birmingham and Derby Railway, which ran from Birmingham and also from Hampton, a station on the London and Birmingham a few miles south of Birmingham, the two sections uniting at Whitacre Junction, and on through Tamworth to Derby. The importance of the opening of this line to the London and Birmingham Company was still further increased during the next year by the opening of the North Midland Railway, a railway which, running from Derby to Leeds, immediately opened up a vast new district to the London and Birmingham, and promised by the help of the York and North Midland and other lines to connect the London and Birmingham with most of the important places in the North Midland and North Eastern districts. But this does not exhaust the list of the openings of new lines which connected with the London and Birmingham, for in 1840 the Midland Counties Railway was opened throughout. This line, commencing at Rugby, ran through Leicester to Nottingham and Derby, and from the first was a great competitor with the Birmingham and Derby for the traffic passing from the London and Birmingham to the North Midland line and *vice versa*. This was the first instance of competitive traffic in British railway history, and so keen did the competition become that a rate war soon broke out between the two railways. At length, however, the Midland Counties obtained a "mandamus" from the Court

of Queen's Bench to compel the Birmingham and Derby Company to charge equal rates. Whatever may have been the reason, whether people considered the railway system of the country nearly complete, or whether it was the reaction following the rapid promotions of previous years, not a single railway bill was passed in 1841. Thus, by 1841, the London and Birmingham Railway, by means of lines working in alliance, provided railway communication between the Metropolis, and most of the important centres of the Midlands, the North-Western and the North-Eastern districts; Birmingham, Manchester, Chester, Liverpool and Lancashire; Nottingham, Leicester, Derby and the Midlands; Sheffield, Leeds, Hull, York, and as far to the North-East as Darlington, could all be reached by train from Euston Square.

Now that railways were beginning to multiply and through traffic from one system to another was developing, the question of through carriages and the division of the rates between the different lines began to receive the serious attention of the different companies. The public expected through carriages, and also expected to be able to buy a ticket for their entire journey, instead of the troublesome system of re-booking at every junction where two lines met. As the railways had not adopted an uniform system of keeping their accounts, the division of these receipts led to much controversy between the different lines, and this, in many instances, delayed the introduction of through facilities. Accordingly, it occurred to Mr. Morison, an audit clerk on the London and Birmingham Railway, that if a Clearing House, on the model of the Bankers' Clearing House, was established, and authorised to divide all the through receipts between the different railways on an uniform system, it would

put an end to the bickerings between the companies, and at the same time lead to the introduction of many new facilities. Mr. Morison brought his scheme to the notice of Mr. Glyn, the Chairman of the London and Birmingham, and the latter enthusiastically took up the idea, with the result that in 1842 the Railway Clearing House was started, under the auspices of nine companies, with Mr. Glyn as Chairman, and Mr. Morison as its first manager. To look ahead a little, we find that in 1850 the Railway Clearing House was authorised by Act of Parliament, "to settle and adjust the receipts



1.



3.

POLICEMAN (OR SIGNALMAN), LONDON AND BIRMINGHAM RAILWAY.

arising from railway traffic within, or partly within, the United Kingdom, and passing over more than one railway within the United Kingdom, booked or invoiced at throughout rates or fares." The original staff of the Clearing House consisted of some half-dozen clerks, while to-day there are some 3,000 persons employed by it. But to return to the London and Birmingham Railway, we find that in 1847 it reached the height of its prosperity with a dividend of $11\frac{1}{10}$ per cent., and with the ordinary shares of £100 selling as high as £223! But it

must not be thought that this was earned at the expense of the public; far from it, in fact, the London and Birmingham was the most popular line in the kingdom and, indeed, it had been christened "the Mirror of Railways."

The London and Birmingham was the only route from London to the north, and although it was destined to remain in this happy position until 1850, already there were rumours of a new trunk line to the north on the eastern side of the country. Railway promotion had been stagnant for some years, but in 1843 the country was on the threshold of another burst of promotion, and the district between London, Cambridge, Lincoln and York was beginning to receive a good deal of attention from promoters for a direct line to Lincolnshire, Yorkshire and the North-East. These promotions, if realised, threatened a large part of the through traffic of the London and Birmingham Railway, and as the best means of counteracting the threatened competition, the latter decided itself to extend into this district, and accordingly it promoted a branch leaving the main line at Blisworth and running through Northampton to Peterboro'. The proposed line met with great opposition from the landowners, but eventually, in 1843, it passed the House of Lords by a majority of one vote!

During 1843 the undertaking of the Warwick and Leamington Railway was transferred to the London and Birmingham, and during this year the dividend was declared at the high rate of 10 per cent. But perhaps the most interesting event in the history of the Company during the year 1843 was the first journey of Queen Victoria over the line. The occasion was a visit to Sir Robert Peel at Tamworth, and on the 28th November, 1843, the Queen, accompanied by the Prince Consort, drove from Windsor Castle to the Watford Station of the London and Birmingham. Here

the Royal party was met by Mr. Glyn, the chairman, and Mr. Creed, the secretary of the railway, who conducted them to a specially prepared waiting-room, the route of the royal progress being laid with a crimson cloth. The train consisted of 5 coaches and 3 trucks, on which some of the Royal carriages were conveyed, the Royal coach being placed in about the middle of the train. Several of the directors and officials travelled on the train, which, after stopping at Wolverton for refreshments, proceeded to Hampton Junction, where it was handed over to the Birmingham and Derby Railway, which took it on to Tamworth. Shortly afterwards the Queen made the return journey by the same route.

It may here be said, looking ahead a little, that during the next year, in November, 1844, the Queen made her first journey from Euston, the occasion being a visit to the Marquis of Exeter at "Burghley House by Stamford Town." Great preparations were made at Euston for the visit, and special waiting-rooms were prepared for Royalty. The Queen and Prince Consort were met by Mr. Glyn, some of the directors, Mr. Creed, and Captain Bruyeres, who escorted the Royal party to the train. The latter consisted of 5 coaches, and left Euston at 9.30 in the morning. The journey to Tring, a distance of nearly 34 miles, was performed in 53 minutes, and here the Queen requested that the speed should be reduced. The train then proceeded to Weedon, when the Royal party dismounted, the remaining part of the journey to Stamford having to be performed by road. Shortly afterwards the return journey was performed by the same route.

We have previously alluded to the increased activity in railway promotions which had begun to show itself, and this grew to such proportions that 1844-46 has come to be known as the years of the

railway mania. The whole countryside was covered with projected railways, and every conceivable line, however meagre its chance of ultimate financial success, was suggested by someone eager to share in the spoils. Naturally, with such an array of new schemes about, many of them threatened the interests of the London and Birmingham and the Grand Junction Railways, so it is not surprising to find that in the common cause of resisting any

TRAIN ENTERING COVENTRY STATION IN 1840.

encroachments on their territory, these two companies were drawn closer together, and in 1844 signed an agreement which, although not an amalgamation, bound the two together in policy.

During this year there came into being a railway which was destined to loom largely in the subsequent history of the London and North-Western. We have seen how the Midland Counties and the Birmingham and Derby lines had been opened

originally as extensions of the London and Birmingham Railway. These lines were practically satellites of the latter, while the chairman of the North Midland, which carried the communication northwards, was Mr. Glyn, the chairman of the London and Birmingham, and it was quite within the range of possibility that any of these lines might have been absorbed by the larger London line; but this was not to be, for in 1844 these 3 lines amalgamated, and formed the Midland Railway.

A curious incident occurred in 1845 which threw some light on the way in which people regarded railways in these early days. By an old English law, any goods or chattels that caused a person's death were forfeited, but in practice this was remitted for a sum of money. Now it happened that the London and Birmingham locomotive No. 91 ran over and killed a man at Camden, and the jury at the inquest placed a "deodand" of "£1,000" on the locomotive. But in spite of everything, the London and Birmingham Railway continued on its prosperous career, and for the years 1844 and 1845 declared the high dividend of ten per cent. Such prosperity, however, was bound to tempt the speculative promoter, and, during the years of the "mania," lines were projected all around the London and Birmingham, many of which were designed to abstract large slices of traffic from it. Anyone looking at the map of the London and Birmingham and Grand Junction Railways could not fail to be struck by the great detour round by Birmingham which the two lines made between Rugby and Stafford, and as early as 1839 a company, under the auspices of the Manchester and Birmingham Railway, had been projected to run through this district, but owing to the opposition of the Grand Junction and London and Birmingham Railways it did not succeed in passing through

Parliament. The scheme, however, was revived the next year under the title of the Stafford and Rugby Railway, and although this time the Grand Junction Railway did not oppose the project, it was again unsuccessful. Still the scheme did not die, but kept to the front, and it became evident to all that sooner or later the line must be made, and the London and Birmingham and Grand Junction Railways recognising this, and wishing to keep the district to themselves, agreed that the line should be made under the auspices of the London and Birmingham Railway. The result of all this was

DOWAGER QUEEN ADELAIDE'S ROYAL COACH,
LONDON AND BIRMINGHAM RAILWAY.

that in 1845 the Trent Valley Railway Company was incorporated by Act of Parliament to make a line from the Grand Junction Railway at Stafford to the London and Birmingham Railway at Rugby, *via* Tamworth and Nuneaton, and on the 13th of November Sir Robert Peel, the Prime Minister, cut the first sod of the undertaking. But opposition to railways was by no means dead, the Trent Valley Railway having encountered the greatest opposition, and, indeed it is even said that the

preliminary expenses of securing the Act exceeded the actual cost of constructing the railway. The line being authorised, the London and Birmingham Railway naturally wished to gain possession of it, as it could not afford to risk the possibility of its short route to the north and north-west passing into the hands of a hostile company. Accordingly, negotiations were opened between the two for the absorption of the smaller line, but the latter undoubtedly held the whip hand. Eventually the negotiations resulted in arrangements being made for the transference of the Trent Valley Railway to the London and Birmingham Railway, but, albeit, at a profit of four hundred thousand pounds to the former's shareholders!

While the London and Birmingham Railway was thus improving its position in the north, it was also developing in the south, for in 1845 it absorbed two authorised lines, the Bedford Railway, a line projected to connect Bletchley with Bedford, and the Dunstable Railway, a railway proposing to connect Dunstable with the London and Birmingham Railway at Leighton. While on the subject of absorbing neighbouring companies, it may be mentioned that early in the next year (1846) the Aylesbury Railway and the authorised but not constructed Rugby and Leamington Railway were both added to the London and Birmingham Railway's system.

In 1845, with a view to improving its position in the western districts of London, the London and Birmingham Railway leased the West London Railway, a railway which had been incorporated as early as 1836 under the somewhat cumbrous title of Birmingham, Bristol and Thames Junction Railway, and whose object was to connect the lines of the London and Birmingham and Great Western Railways with each other, and with Kensington, and also with the Thames by means of the Kensington

Canal, which it purchased for £36,000. The lease was for 999 years, and contained a clause giving the Great Western Company a right to participate, which that company afterwards exercised. The relations between the London and Birmingham Railway and the latter railway were beginning to become somewhat strained. The Great Western Railway, which was laid out on the broad gauge principle, was originally intended as a route to the west, but not content with this district, it was beginning to cast envious glances towards Birming-

INTERIOR OF THE CURZON STREET TERMINUS, BIRMINGHAM.

ham and the north-west, and to formulate proposals for extending the broad gauge into these districts. In 1845 a Bill, under the title of Oxford, Worcester and Wolverhampton Railway, came before Parliament. This was a broad gauge line (although it did propose to lay the mixed gauge), and virtually a dependency of the Great Western Railway. The London and Birmingham Railway, as the best means of checking the advance of the broad gauge, promoted a branch from its main line at Tring, through Aylesbury, with a branch to Oxford, and

on to Worcester and Wolverhampton, thus covering the same ground as the proposed broad gauge line. The Bills came before a Committee of the House of Commons in 1845, and caused the greatest excitement, the rivalry between the two "gauges" being intense. At length, after a thirty days' hearing, the Committee passed the preamble of the Oxford, Worcester and Wolverhampton Railway, and threw out the Bill of the London and Birmingham Railway.

The relations between the London and Birmingham and Grand Junction Railways at this time were becoming rather strained; each charged the other with having acted contrary to the agreement of 1844, and if the truth were told, both had acted decidedly contrary to it. The London and Birmingham Railway had carried out negotiations for amalgamating the Manchester and Birmingham Railway, which was distinctly in the Grand Junction Railway's territory; while the latter had replied to the challenge by carrying on a mild flirtation with the Great Western Railway with proposals for a line to connect the two systems between Birmingham and Oxford. But with the increasing competition from without, the directors took to heart the lesson of a house divided against itself, and negotiations were entered into between the two companies to put an end to this cut-throat policy. The result was satisfactory, and an agreement for amalgamation was entered into by the two companies. The directors of the London and Birmingham Railway, in reporting to the shareholders, remarked: "Considering the great and obvious importance to both parties of an arrangement which gives a common interest to lines so circumstanced as the London and Birmingham and Grand Junction Railways, the directors think it unnecessary to do more on the present occasion than to refer to the obvious benefit which

must be derived from a combination of the resources of the two companies under one common management, and the increased means which will be thereby afforded of providing for the convenience of the public, and of adopting such moderate rates and fares as cannot fail to be satisfactory to them." As the London and Birmingham Railway had previously agreed to amalgamate with the Man-

THE ENTRANCE TO BIRMINGHAM STATION.

chester and Birmingham Railway, the latter was also included in the union, and accordingly a Bill was lodged in Parliament to amalgamate the London and Birmingham, the Grand Junction (which had just previously itself amalgamated with the Liverpool and Manchester Railway), and the Manchester and Birmingham Railways.

CHAPTER III.

The Grand Junction Railway.**1830—1846.**

THE GRAND JUNCTION—THE NORTH UNION—
LANCASTER & PRESTON—LANCASTER & CARLISLE—
AND THE CALEDONIAN RAILWAYS.

The Grand Junction Railway, or rather the undertaking which afterwards developed into the Grand Junction Railway, was one of the oldest railways projected. Even before the Liverpool and Manchester Railway had obtained its Act of Parliament, a scheme was brought forward for making a line from Birkenhead to Birmingham; a prospectus was issued, and in 1824 application to make the line was made to Parliament. In his life of the Stephensons, Samuel Smiles tells us that "when engaged in making the survey, Stephenson called upon some of the landowners in the neighbourhood of Nantwich to obtain their assent, and was greatly disgusted to learn that the agents of the Canal Companies had been before him, and described the locomotive to the farmers as a most frightful machine, emitting a breath as poisonous as the fabled dragon of old; and telling them that if a bird flew over the district where one of these engines passed, it would inevitably drop down dead!" This scheme was born before its time, and the Bill was thrown out owing to the opposition of the canal interests and the landowners; it was again brought forward in 1826, but met with the same fate. After this the project lay dormant for some time, the promoters evidently preferring to wait and watch the results of the Liverpool and

Manchester Railway. With the latter a signal success, the scheme once again came to the fore, and in 1830 application was again made to Parliament. Whatever may have been the reason, whether the promoters thought the line had a better chance of passing, or whether it was merely some financial manœuvre, this time the railway was divided into two sections, with two boards of directors; the first section was for a line from Birkenhead to Chorlton, near Whitmore, in Staffordshire, and the second for a line from Chorlton to Birmingham. But still success did not crown the efforts of the promoters; the Birmingham line was speedily dismissed, and the Birkenhead section, although it passed its first reading, was brought to an end by the dissolution of Parliament owing to the rejection of the Reform Bill.

Having failed so often in their efforts, the promoters decided to alter radically and improve their scheme. Their main object, as we have previously seen, was to connect Liverpool with Birmingham, and although Birkenhead had been chosen as the northern terminus, Liverpool had all along been the chief objective in the north, the necessary connection between the two places being performed by ferry across the Mersey. It was now thought that the ferry route would be inconvenient, and would tend to stunt the growth of the traffic. Accordingly it was decided to change completely the northern end of the line, and, instead of going through Chester to Birkenhead, to divert it further to the east, through the centre of Cheshire to a junction with the Liverpool and Manchester Railway at Newton, a total length of $32\frac{1}{2}$ miles, where a connection would be made, not only for Liverpool, but also for Manchester. The line was christened the Grand Junction Railway, as it proposed to connect the Liverpool and Manchester Railway with

the projected London and Birmingham Railway, and it was arranged that the management should be in the hands of 24 directors—12 from Birmingham and 12 from Liverpool. There was already in existence a short line from the Liverpool and Manchester Railway at Newton to the town of Warrington, and the Grand Junction concluded arrangements to absorb it. The Bill was placed before Parliament, and, curiously enough, this time it passed without any serious opposition, receiving

EXTERIOR OF THE FIRST RAILWAY TRAVELLING POST OFFICE, AS
RUN IN THE TRAINS BETWEEN EUSTON AND LIVERPOOL.

the Royal Assent on May 6th, 1833.

During this session, as we have seen in a previous chapter, the London and Birmingham Railway also secured its Act of Incorporation, and so a chain of railway communication became authorised between London, Birmingham, Manchester and Liverpool—the four largest cities in the country—so from the first the title of “Grand Junction” was no misnomer.

It is interesting to note that the Act contained

the curious provision that no parson was to be a director of the company. The preliminary expenses of obtaining the Act only amounted to £22,157, and as the line presented no very costly engineering works, it was estimated that the company would pay 14 per cent. ! The work of construction was soon begun. Stephenson and Locke were the engineers for the northern section, while Rastrick supervised the southern section. From an engineering point of view, the works on the line were not to be compared with those on the Liverpool and Manchester and London and Birmingham Railways, for there was no "Olive

INTERIOR OF THE FIRST RAILWAY TRAVELLING POST OFFICE.

Mount cutting," "Chat Moss" or "Kilsby Tunnel."

George Stephenson, writing anonymously about the line in 1838, remarked what a cheap line it was to construct, and said : " The most important work upon this line is a viaduct near Northwich with 20 arches, each 60 feet span, and about 60 feet high. It is built over the River Weaver, and is a very fine specimen of masonry and bridge building. It is one of Stephenson's finest designs. The stone is of the red sandstone formation, and was brought from Runcorn. This is the only work upon the whole line of any magnitude ; the cuttings

and embankments are generally very slight. There are two small tunnels, each about 200 yards long, but in travelling at railway speed they can scarcely be recognised as tunnels. The local population upon the line is not very considerable, Wolverhampton, Warrington and Walsall being the only towns of any importance through the whole of the country it traverses. The amount of local population may perhaps be estimated at 150,000."

The Grand Junction Railway was laid out with heavier gradients than the Liverpool and Manchester or the London and Birmingham, the severest of which was the Madeley Bank, where for about 6 miles the gradient varies from 1 in 180 to 1 in 260. Here were situated the biggest earthworks on the line, but the greatest work, as we have seen before, was the viaduct over the Weaver at Dutton, in Vale Royal. The Weaver Viaduct was a great achievement in those days. In laying the last stone Mr. Heyworth, the senior director of the company, congratulated the contractors that "in the erection of this, the greatest and first structure of its kind in the kingdom, no life or limb has been sacrificed." We have previously seen that Stephenson himself described it as one of his finest designs, while Samuel Smiles says: "The structure has a solid and majestic appearance, and is, perhaps, the finest of George Stephenson's viaducts." But this was not the only large viaduct on the line, for at the Birmingham end, before the terminus at Curzon Street could be reached, a long viaduct of 28 arches, called the Lawley Street Viaduct, had to be constructed through the city. It is very interesting to recall the fact that Brassey, the great contractor, who subsequently constructed lines in all parts of the world, obtained his first contract on the Grand Junction. First he tendered for the great Weaver Viaduct, but his price was too high, and

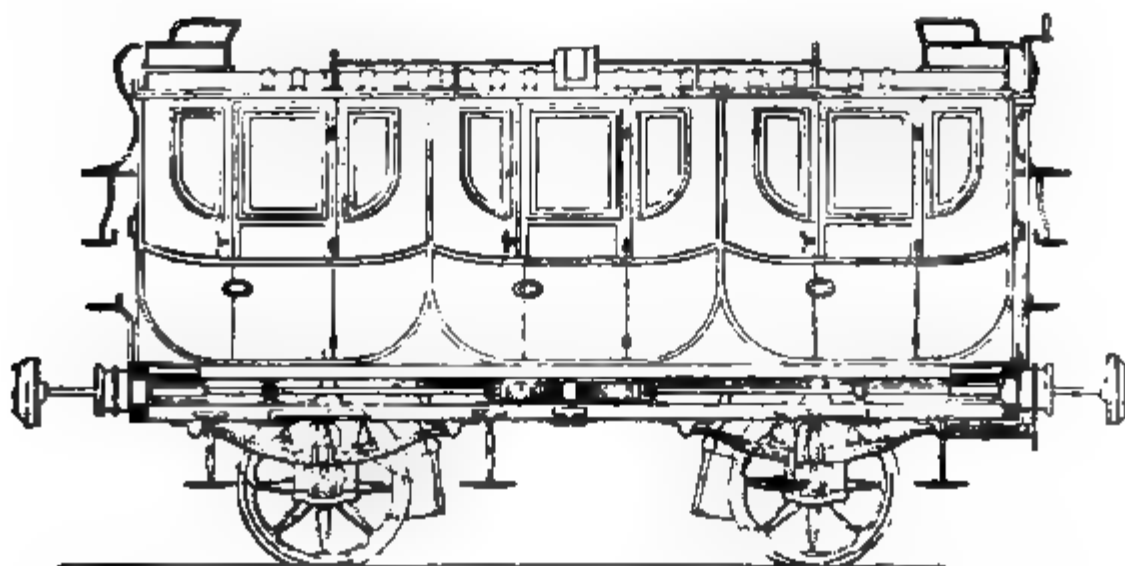
he did not get it; then he tendered for and obtained a stretch of line near Penkridge, and this was the beginning of his great contracting career. The line, as we have seen before, was an extremely cheap one to construct, the average cost per mile being £18,846, as compared to an average per mile on the London and Birmingham of some £53,000. The construction was rapidly pushed forward, so that by the middle of 1837 the whole line was ready for opening, with the exception of the Birmingham terminus and the Lawley Street Viaduct in that city. The length of the line was 78 miles, or, including the previously opened Warrington and Newton Railway, which was absorbed in 1833, a total length of 82½ miles. A temporary terminus was prepared at Birmingham, and on July 4th, 1837, the line was opened for traffic. Compared to many openings, the Grand Junction's was a very quiet affair. The following account appeared in one of the London papers of the day: "Birmingham, July 5th; at an early hour the town was in a state of great commotion and pleasurable excitement, owing to its being the day appointed for the general opening of the Grand Junction Railway from Birmingham to Liverpool and Manchester. Soon after five o'clock the streets leading in the direction of Vauxhall, where the Company's temporary station is situated, were crowded with persons of all ranks anxious to witness the first public travelling on this important line of railway communication. It was remarked, however, as somewhat singular, that there was, even throughout the day, a comparatively small attendance of the leading merchants and manufacturers of Birmingham, which has been attributed to none of the latter having been placed on the direction of the Grand Junction Railway. Indeed, the directors of the latter are entirely limited to the bankers and merchants of Liverpool.

By six o'clock yesterday morning the bridge which crosses the railway at its entrance to the station yard, and, indeed, every eminence that commanded the least view of the line, was covered with persons awaiting the starting of the carriages. But it was not in Birmingham, or its immediate vicinity only, that public curiosity was unusually excited. The embankments of the several excavations, and even the valley through which the railway alternately 'wends its way' between Birmingham and Wolverhampton, were literally covered with dense masses of admiring spectators. Indeed, in the neighbourhood of Bescot Bridge, James' Bridge, and Willenhall, contiguous to the iron and coal district, the crowd was, if possible, more formidable than in the suburbs of Birmingham. Upon entering the station yard about half-past six o'clock, we were, however, much struck with the thinness of the company within the Company's premises. It presented a striking contrast to the station yard on Olive Mount, at the opening of the Liverpool and Manchester Railway in 1830. It was evident, indeed, that no exertions had been made to give *éclat* to the proceedings of the day. There were no bands of music, no profuse display of banners, no attendance of distinguished visitors—in fact, within the precincts of the station there was scarcely anything to distinguish it from an ordinary day of business. The only display we observed was a small flag attached to the first carriage of the train, on which was emblazoned in small characters, with the Royal Arms, the letters * 'W.R.' 'A.R.', and the words, 'The True Reformer.' At seven o'clock precisely the bell rang, when the opening train, preceded by the *Wildfire* engine, commenced moving. The train consisted of eight carriages, all of the first

* William Rex and Adelaide Regina.

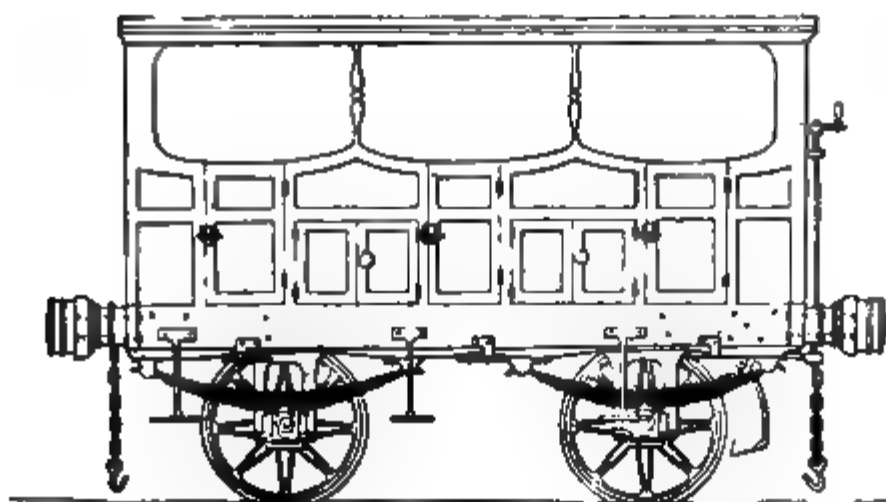
class, and bearing the following names:—‘The Triumph,’ ‘The Greyhound,’ ‘The Swallow,’ ‘The Liverpool and Birmingham Mail,’ ‘The Celerity,’ ‘The Umpire,’ ‘The Statesman,’ and ‘The Birmingham and Manchester Mail.’ The train started slowly, but upon emerging from the yard speedily burst off at a rapid pace. To those who for the first time witnessed such a scene it was peculiarly exciting, and the immense multitude, as far as the eye could reach, gave expression to their admiration by loud and long-continued huzzas and the waving of hats and handkerchiefs. Having in some degree escaped the multitudes, power was laid on, and from Perry Barr to Newton Road the speed could not be less than from thirty-five to forty miles in the hour. The succession of trains which followed throughout the day served to keep up the popular excitement, and the crowd, instead of diminishing in number, hourly increased. At half-past eight o’clock a train of the second class set out amidst similar demonstrations of admiration to those called forth by the first. The chief object of attraction which now engaged the public attention was the arrival of the first train from Liverpool. The Directors, in their published statement of arrivals and departures, announced that the train would leave Liverpool at half-past six in the morning, and arrive at Birmingham at five minutes past eleven—that is, in four hours and a half. It was to be expected, however, that owing to the crowds which would assemble at the various stopping places, some interruptions would occur, and the arrival of the train at Birmingham be delayed beyond the appointed hour. In this respect the general expectation was, in a small degree, eventually confirmed. At about twenty-seven minutes past eleven the cheering at a distance announced the approach of an arrival, and at exactly half-past eleven o’clock the first train

from Liverpool entered the station yard in Birmingham, amidst the most vociferous applause. It was difficult to say which party appeared the most delighted—the astonished travellers or the multitudinous wonder-struck company by whom they were received. Throughout the entire journey the opening train from Liverpool experienced the most uninterrupted enjoyment of ‘wind and weather.’ It consisted of ‘The Hibernia,’ ‘The Chanticleer,’ ‘The Patriot,’ ‘The Delight,’ ‘The Delamere,’ ‘The Columbus,’ and ‘The Birmingham and Manchester Mail.’ The train left the stations at Manchester and Liverpool at half-past six. Including stoppages, the train performed the journey at the rate of at least twenty miles per hour, being, as might be expected, about half an hour late on account of interruptions incidental to the day. The starting of the several trains which followed from Birmingham was remarkably regular, but owing to causes to which we have already alluded, the arrival of those from Liverpool was not equally well-timed. The mixed train which ought to have arrived at two o’clock did not arrive until four. This delay was attributed chiefly to the obstreperous intrusion of the workpeople in the iron and coal districts. From Wolverhampton to James’ Bridge the carriages were literally besieged by the multitude, and the only way to avoid accident was to proceed slowly and surely, without regard to the published time of arrival in Birmingham. The first return train from Liverpool arrived at seven o’clock, and was loudly cheered upon its entrance into the station yard. So far the proceedings of the day passed off joyfully and without any mixture of alloy, but the non-arrival of the mixed train, which ought to have come in at ten o’clock, very soon gave rise to very considerable apprehension. The last first class return train was advertised to arrive in



FIRST CLASS CARRIAGE.

ENCLOSED SECOND CLASS CARRIAGE.



OPEN SECOND CLASS (AFTERWARDS THIRD CLASS) CARRIAGE.

Note the Horse-hair Buffers.

LONDON AND BIRMINGHAM RAILWAY.

Birmingham at five minutes past eleven, but the hours passed away, and midnight succeeded, and still no tidings of it had been received. At three in the morning, however, both trains arrived, the delay having been occasioned by the breakage of one of the tubes of the engine by which the mixed train was worked."

Thus was the Grand Junction Railway opened for traffic, and from the first it was a great success. At its northern end it made arrangements with the Liverpool and Manchester Railway to run its own trains into Manchester and Liverpool, but for every passenger and for every ton of goods carried it had to pay toll to the latter company. At Birmingham its station adjoined that of the London and Birmingham Railway, which was opened soon after, and with which a junction was effected; besides the termini, the line also served Wolverhampton, Walsall, Warrington and Stafford, while in its early days Whitmore was also an important station, as it was the centre for coaches to Market Drayton, Shrewsbury, Newcastle and the Potteries. Crewe in those days was a mere hamlet, but in 1843 the Grand Junction Railway selected it as the site for their locomotive and carriage works, and from that date the place has never looked back. The buildings were put up under the supervision of F. Trevithick, locomotive superintendent of the Grand Junction Railway and son of one of the greatest pioneers of the locomotive, and when first constructed they occupied an area of some two and a-half acres. Such was the beginning of Crewe Works.

The Grand Junction Railway was a very well-equipped line, permanent way, signals and rolling stock all being constructed on the latest principles. The rails were on a new system invented by Joseph Locke; they weighed 84 lbs. per yard, and were double-headed and reversible, the original intention

being to turn them over when one side was worn ; in practice, however, they did not prove very satisfactory, as the lower head became indented in the places where it rested in the chairs. The line was provided with signals, which consisted of discs and lamps on the top of posts about 12 feet in height. The signal to stop was a red light, or the disc turned towards the train ; the signal to go on was a white light, or the disc turned edgeways to the line. The carriage stock of the Grand Junction Railway was very good for the period, and a great advance on that of the Liverpool and Manchester Railway. As was the general custom, luggage was carried on the roofs of the carriages, and amongst the rules of the company we read, " Every passenger's luggage will, as far as practicable, be placed on the roof of the coach in which he has taken his place ; carpet bags and small luggage may be placed underneath the seat opposite to that which the owner occupies." The practice of carrying luggage on the roof survived on some lines for many years, but in 1845 the Grand Junction and London and Birmingham Railways introduced baggage vans on their trains.

The Post Office soon took advantage of the opening of the line, and the Grand Junction Railway soon began to carry a large part of the Royal Mail, as many as 740 mail bags being carried each day. Soon after the opening there was some slight friction with the Liverpool and Manchester Railway over the question of Sunday trains. The latter company had a bye-law forbidding the running of trains between 10 a.m. and 4 p.m. on Sundays. To the bye-law the Grand Junction Railway took exception, as it interfered with the running of their Mail trains, and appealed to the Postmaster-General, who decided in their favour. The Grand Junction Railway benefited not only its own shareholders, but also the whole public along its line ; in fact, it is hard to say which it benefited the most. It is

recorded that soon after the completion of the line its shares, upon which £90 had been paid up, were sold for as much as £186, or at more than a hundred per cent. premium, but this falls into comparative insignificance when one knows that prior to the advent of railways the Birmingham Canal shares, which cost £140, had changed hands at £2,800.

The public benefited in many ways. A report of the time remarks: "Among the many advantages resulting from rapidity of communication may be mentioned the more extensive distribution of perishable commodities. The dinner tables of Birmingham are, since the opening of the Grand Junction Railway, regularly supplied with fresh fish, purchased the same morning in the markets at Liverpool, and that which was formerly procured as a costly luxury by the few only who could afford it is now placed in a more desirable condition within the reach of the many." But it was in the cheapening of the cost of conveyance of goods, and in the reduction of time on the journey, that the public chiefly benefited, and they were not slow to take advantage of the new mode of conveyance. Whereas it had been estimated that, prior to the railway opening, about 220,000 passengers—both through and local—annually used the coaches between Birmingham, Manchester and Liverpool, now the railway was carrying about 1,600 passengers daily.

To enable this to be done meant working the railway at high pressure, and it is recorded as a remarkable instance of early locomotive reliability that three engines supplied by R. Stephenson & Co. ran the following mileages between July the 8th and September the 30th—the *Wildfire*, 11,865 miles; the *Scorpion*, 11,137 miles; and the *Shark*, 10,018 miles.

But even before the opening of the line a

competitor for the Manchester traffic had appeared in the field, for in 1837 a line, under the title of Manchester and Birmingham Railway, had been authorised to construct a line from Manchester to a junction with the Grand Junction Railway about 33 miles north of Birmingham, the chief object of which was to shorten the distance from Manchester to London and the south. This was, therefore, very far from the liking of the Grand Junction Railway, which looked upon the Manchester and Birmingham line as an invader in its territory, and therefore did

ONE OF ALLAN'S 7 FT. SINGLE ENGINES, BUILT IN 1847 FOR
WORKING EXPRESS TRAINS OVER THE NORTHERN DIVISION.

all in its power to stop it. In the first report after the opening of the line, the Grand Junction Railway laid special stress on the smallness of the receipts from the Manchester traffic, obviously for the benefit of the Manchester and Birmingham Railway directors and shareholders. The report then continued: "It has not only shown how exaggerated were the estimates of the Manchester business, but it has added another to the many proofs of the fallaciousness of Parliamentary evidence, and by removing the delusion which

has so long existed on this subject, it may tend to limit the views of subscribers to railways for which Acts have lately been obtained." This broad hint, however, had no effect on the "subscribers" to the Manchester and Birmingham Railway, but the impending competition had its effect on the policy of the Grand Junction Railway. In 1837 there had been sanctioned by Parliament a line to connect Chester and Crewe, having a capital of £250,000, and in 1840 the Grand Junction Railway, fearful lest this line should fall into the hands of the Manchester and Birmingham Company, itself purchased the Chester and Crewe line. At about this period there were 13 through passenger trains daily running over the Grand Junction Railway, many of them in connection with the trains of the London and Birmingham Railway at Birmingham. Four of these trains accomplished the journey between Liverpool and Birmingham in 4 hours, one did it in $4\frac{1}{4}$, three took $4\frac{1}{2}$, another $4\frac{3}{4}$, two $5\frac{1}{4}$, while two took $5\frac{1}{2}$ hours.

It is interesting to note in passing that about this time "Bradshaw" first came on the scene. Bradshaw's Railway Time Table first appeared in 1839, but "Bradshaw," as we have it, was born in 1841, when the first number of "Bradshaw's Railway and Steam Navigation Guide" was published; its price was then as now, 6d., but compared with the bulky publication of to-day, it was a very modest pamphlet.

But we are digressing, and must return to the Grand Junction Railway. As we have previously seen, the original object of the latter was to be a "Grand Junction" line between the London and Birmingham and the Manchester and Liverpool Railways, but its management also hoped to convert it into the main route to the North of England, and even Scotland, although there were

many who thought that a railway line to Scotland could not possibly pay. In 1830 two lines had been authorised by Parliament—the Wigan Branch and the Preston and Wigan—and in 1834 these two lines amalgamated, and became the North Union Railway, possessing a line from near Newton, on the Liverpool and Manchester Railway, to the town of Preston. In 1837 a company was incorporated under the title of the Lancaster and Preston Junction Railway, which proposed to continue the line on from Preston to Lancaster, thus completing a continuous railway communication between the Metropolis and Lancaster. Even before the opening of this line, as early as 1836, the directors of the Grand Junction Railway sent their engineer, Joseph Locke, to survey the country between Preston, Carlisle, Glasgow and Edinburgh, with the intention of finding the most serviceable route for continuing the railway into Scotland. Locke accordingly surveyed a line to Carlisle, but north of Carlisle came the difficulty, beyond the border there were two main routes for a line; he would either take it up Nithsdale or up Annandale. The former was farther in point of mileage, but with easier gradients; while the latter, although a much shorter route, had the disadvantage of a great summit which had to be surmounted. At length Locke chose the line with the easiest gradients, and reported in favour of the Nithsdale route. A provisional committee had in the meantime been formed to further the Annandale scheme, as it was a much nearer route to Glasgow, and also provided a serviceable route to Edinburgh (which the Nithsdale line did not), and at the suggestion of the Annandale party Locke again surveyed the country, and this time (in 1837) reported in favour of the Annandale scheme. But Glasgow itself was strongly in favour of the Nithsdale scheme, and so a deadlock existed between the

two parties. At last it was arranged that Locke and Miller should resurvey the routes, which they accordingly did, and to look ahead a little, in 1840 Locke naturally again reported in favour of the Annandale, and Miller in favour of the Nithsdale.

But while the two parties were thus squabbling over the best means of communication between Carlisle and Glasgow, there was a strong party bent on connecting Scotland with England on the eastern side of the country, and to the latter party Edinburgh gave its strong support. These latter favoured the route from London to Edinburgh *via* Rugby, Derby, Normanton, York, Darlington and Newcastle, and it was in continuation of the route that the "East Coast" party proposed extensions from Newcastle to Edinburgh *via* Berwick. The rivalry between these different projects became so acute that it was eventually suggested that, seeing that the question of railway communication between Scotland and England was a national question, the Government should take up the question and institute an enquiry into the relative merits of the different schemes. This was accordingly done, and in 1839 the Government appointed a special Commission of the Board of Trade, consisting of Sir Frederick Smith and Dr. Barlow, to report on the question of railway communication between London and Scotland. The Commissioners heard a mass of evidence, and two years later, in March, 1841, they published their report, in which they fully dealt with the merits and demerits of the various schemes, and since they believed (as many did besides them) that one route would amply suffice for the traffic passing between the two countries, they "felt bound to give the preference to the 'West Coast,' *i.e.* that from Carlisle to Lockerbie, Beattock, Lanark and Hamilton to Glasgow, with a branch from Thankerton or Symington to Edinburgh," and stating that "should any party be

ready to undertake its execution, they would certainly be entitled to every facility from the Government, provided security were given to complete the whole line to Lancaster." Thus the result was a triumph for the Grand Junction Railway and the West Coast promoters; but owing principally to the weak state of the money market and to the slump in railway enterprise, nothing was done for some time to carry out the Commissioners' Report. However, in 1844 the Lancaster and Carlisle Railway was authorised, in which the Grand Junction Railway was keenly interested, and indeed subscribed £250,000, and the chain of railway communication was thus advanced to the Scottish border. But although the Nithsdale scheme had received a set-back owing to the Report, it was still very much to the fore, and in 1845 Bills both for the Annandale and Nithsdale schemes came before Parliament. The rival East Coast promoters had secured their North British Railway from Edinburgh to Berwick in the previous session, and they now only needed the requisite Parliamentary sanction to fill in the gap between Gateshead (Newcastle) and Berwick to complete a through line from London to Edinburgh.

Many names had been proposed for the Annandale line; besides the former, the Clydesdale and others had been suggested, but at length the Caledonian Railway was adopted as its title, while at the same time the Company assumed the Royal arms of Scotland for its coat of arms. On May 7th, 1845, the rival projects came before Parliament, and the great duel commenced. The opposing side made a great point of the Beattock summit, and it must be confessed that the incline was very severe, for the line was planned to rise 600 feet in 8 or 10 miles at a gradient of 1 in 75; but even with this summit the Caledonian Railway was a far

ALLAN'S 'CREWE' GOODS LOCOMOTIVE FOR THE GRAND JUNCTION RAILWAY.

This design of engine, introduced in 1845, is claimed to be the first engine with the 2-4-0 wheel arrangement.

better scheme than the "Nithsdale"-Dumfries line, for it was 24 miles shorter to Glasgow, and to Edinburgh it was 70 miles shorter, for the Nithsdale scheme could only communicate with Edinburgh by way of Glasgow. But the Nithsdale line, strongly supported by most of Glasgow, made a great fight, and the struggle between the two schemes was one of the greatest railway contests which have taken place in Parliament. After hearing over eighty witnesses the House of Commons Committee passed the Caledonian Railway Bill, but the contest was renewed in the Lords. At last, however, after an expenditure of £75,000, the Bill for the Caledonian Railway was passed on July 31st, 1845.

During this session the "East Coast" party got the requisite Parliamentary powers to fill in the gap in their route between Gateshead and Berwick, and so by 1845 both the East and West Coast promoters had secured Parliamentary powers for connecting England and Scotland by railway.

While the battle between the 'East' and 'West' Coast Routes to Scotland was being fought, other parts of the country were experiencing the same sort of thing, for, about 1844, railway promotion, which had been stagnant for some time, suddenly revived, and new competitive lines were projected all over the kingdom. Many of these lines threatened, if made, to seriously interfere with the Grand Junction and London and Birmingham Railways, and so these two lines entered into a very intimate alliance, which safeguarded their respective interests and formulated a common policy for the two companies. This treaty arranged "that the two concerns shall remain separate and distinct, as at present, but shall unite for mutual protection. That the London and Birmingham Railway be at liberty to prosecute the Holyhead and Birkenhead lines with any branch south

of Birmingham: the Grand Junction Railway any branch north of Birmingham. That the London and Birmingham Railway, with the concurrence of their Shropshire party, shall withdraw from the guarantee of the Shrewsbury and Birmingham line; the Grand Junction Railway, with the concurrence of their Staffordshire shareholders, undertaking to make a line to Wolverhampton, and to guarantee 4 per cent. on the capital and an equal division of further profits; the Shrewsbury and Birmingham shareholders, under the same conditions as the Shrewsbury and Grand Junction Railways, having an option of half the capital, the Grand Junction Railway Company taking a lease in perpetuity, and working the line in a manner convenient to that part of the country.

“That the Trent Valley, or Stafford and Rugby line, shall be prosecuted by the London and Birmingham Railway, Manchester and Birmingham Railway, and Trent Valley Railway party, on the terms already agreed upon between Mr. Moss and the last-named party, and as subsequently explained to the London and Birmingham Railway Company, unless the latter can induce the Trent Valley Railway party to agree to other terms, the London and Birmingham Railway being at liberty so to do as far as regards the Grand Junction Railway, provided the latter are not by such new terms called on to make any sacrifice which the London and Birmingham Railway does not equally make, the Grand Junction Railway using their best endeavours to secure fair terms in the arrangement between the London and Birmingham Railway and the Trent Valley Railway promoters.

“That if the Holyhead line is made, the Grand Junction Railway shall not, either by a disproportionate reduction of rates to and from Liverpool,

or by arrangements with the Irish steamboat proprietors thence, compete for the Irish traffic, but leave it to take its natural course. That neither Company, except as above, shall engage in any new enterprise without the previous consent of the other; that they shall mutually co-operate and assist each other for the accommodation and increase of the joint traffic; and that each shall, as far as possible, direct over the line of the other all its legitimate traffic. That a select committee of two or three gentlemen from each board shall meet to fix the prices over both lines, always having reduction in view, so far as is practicable and fair, in order to do away with any grounds for competing lines, such committee to have power to make all other arrangements for the joint working of the two lines most efficiently for the public and most profitably for the shareholders. That if any difference of opinion arise in the carrying out of this arrangement, it shall be left to the arbitration of three proprietors (not being directors) chosen by each board and their umpire." Such was the great treaty which was arranged between the Grand Junction and the London and Birmingham Railways, and it was generally thought that, while still retaining their independence, the two lines were now virtually one system. But "the best laid schemes o' mice and men gang aft agley," and this particular one followed in the footprints of the majority and did the same, and it was not very long before the relations between the companies became strained. Each company accused the other of breaking the treaty, and there is no doubt that they both did so, but which was the first to break it is a point upon which we shall not attempt to adjudicate—we will merely state the bare facts. The first sign of an

impending breach was over the Churnet Valley Railway, one of the numerous schemes during the mania. The Churnet Valley was in the Grand Junction's district, and the latter alleged that the London and Birmingham, if not actually engaged in its promotion, was taking a suspicious amount of interest in it. The breach between the two companies once started soon widened, and it was not very long before the London and Birmingham concluded arrangements for absorbing the Manchester and Birmingham and the Churnet Valley, which two, together with the Trent Valley Railway, would give the London and Birmingham a route of its own to Manchester and Lancashire independent of the Grand Junction. This was a situation which the latter could not but view with alarm, as it threatened to divert a large part of the traffic from its line, and it accordingly sought other alliances.

To the south was the line of the Great Western, although broad gauge, and it was to this quarter that the Grand Junction turned. It accordingly supported a project for a line from Birmingham through Leamington to Fenny Compton, a place some distance north of Oxford, with a view of securing a fresh outlet to the south. However, neither company was successful with its proposals. The Grand Junction, besides looking to the south, also sought to improve its position in the north. In the north it occupied a very curious position, for while drawing the great bulk of its traffic from Manchester and Liverpool, it only reached these places by using the line of the Liverpool and Manchester Railway, for which it had to pay a toll to the owning company. This was not considered very satisfactory, and with a view to remedying it, the directors of the Grand Junction opened negotiations with the Liverpool and Manchester Railway, which resulted in an

amalgamation of the two systems in 1845. At the same time the Grand Junction absorbed the Bolton and Leigh Railway, a railway which had itself in 1836 absorbed the Kenyon and Leigh. We may remark, in passing, that both the Grand Junction and the Liverpool and Manchester were in a very prosperous financial condition, the latter

THE NORTH PORTAL OF THE MILFORD TUNNEL NEAR STAFFORD.

paying 10 per cent., 10 per cent. and $9\frac{1}{2}$ per cent. for the years '42, '43 and '44, while the Grand Junction kept up a steady 10 per cent. for '42, '43, '44 and '45.

The amalgamation with the Liverpool and Manchester Railway greatly improved the position of the Grand Junction in Lancashire and the north,

particularly in the great cities of Manchester and Liverpool, and placed it in a better position to withstand the threatened attack of the London and Birmingham Railway. We have previously seen that from a very early period the directors of the Grand Junction had grasped the importance of communication with the far north and Scotland, and had even sent Locke to survey the best route to the north. The traffic to Scotland and the north had great attractions, and with a view to promoting it and keeping it on its own lines, the board jointly with the Manchester and Leeds Railway (afterwards the Lancashire and Yorkshire) agreed to lease the North Union Railway in 1845, and, in addition, the Grand Junction entered into very intimate relations with the Lancaster and Preston and Lancaster and Carlisle Railways. Thus the Grand Junction had now developed into a most important system, owning a main line from Birmingham to Preston, possessing lines into the great cities of Liverpool and Manchester, whilst amongst its several branches were those to such important towns as Chester and Bolton; southwards from Birmingham lay the London and Birmingham, while north of Preston and Lancaster were the lines under construction to Scotland.

That the lines of the Grand Junction and London and Birmingham Railways were complementary to each must have struck anyone looking at a map, and at last this fact seems to have been grasped by the boards of the two companies. The board of the London and Birmingham was the first to recognise the follies of its ways, and opened negotiations with the Grand Junction with a view to closer working between the two lines, which resulted in arrangements being concluded for amalgamating the Grand Junction, London and Birmingham and Manchester and Birmingham Railways.

CHAPTER IV.

The Manchester & Birmingham Railway.
1836—1846.

THE MANCHESTER AND BIRMINGHAM—DIFFERENT
 ROUTES PROJECTED—THE TRENT VALLEY
 SCHEME—THIRD CLASS ACCOMMODATION—
 TRAIN OF 112 COACHES — THE RAILWAY
 MANIA — AMALGAMATION PROPOSALS — THE
 LONDON AND NORTH-WESTERN RAILWAY.

We have briefly sketched the inception and growth of the Liverpool and Manchester, the London and Birmingham and the Grand Junction Railways, and we will now proceed to deal with the other chief component part of the original London and North-Western Railway.

The Manchester and Birmingham Railway was a Manchester projection, proposed in the interests of Manchester to shorten the route between Manchester and the Metropolis. As we have previously seen, the Liverpool and Manchester Railway was opened in 1830, and the London and Birmingham and Grand Junction lines were authorised in 1833, but long before the opening of the two latter, there arose an agitation among the inhabitants of Manchester to secure more direct access to the Metropolis, as it was recognised that the authorised route would be very circuitous, trains having to run for some 15 miles due west before they could begin their journey to the south over the Grand Junction. Several schemes for this purpose were brought forward, which, starting from Manchester, proposed divers points of junction with the authorised lines of the London and Birmingham and Grand

Junction, varying from Crewe, in the north, to Rugby, in the south. In 1836 a railway, under the title of the Manchester, Cheshire and Staffordshire, came before Parliament, proposing to unite Manchester with Stafford on the Grand Junction, but it did not meet with success. It was revived, however, and again came before Parliament during the next session, but this time had to encounter a rival, which proposed an alternative scheme covering more or less the same country and with much the same objects. This latter was named the Manchester South Union Railway, and proposed to construct a line from Manchester to a junction with the Birmingham and Derby Railway at Tamworth. An amalgamation of the two schemes followed, and the railway, under the title of the Manchester and Birmingham, was authorised by Parliament in 1837. The line, as eventually planned, was a compound of parts of the two rival schemes. Commencing at Manchester, it was planned to run through Stockport and Congleton, through the busy manufacturing districts of the Potteries to the town of Stone; from here it was planned to run to a junction with the Grand Junction Railway near Chebsey, a total length of about 45½ miles. Besides this, there was another section commencing at Alderley, and terminating with another connection with the Grand Junction at Crewe, an additional 15 miles, and also a branch of 11 miles from Stockport to Macclesfield. The Company received its Act of Incorporation on 30th June, 1837, the authorised capital being £2,150,000, with an additional £700,000 authorised to be raised by loans. In 1839 a Company, under the title of the Manchester and Birmingham Extension Railway, which was under the auspices of the Manchester and Birmingham, came before Parliament, seeking powers to construct a line from near Crewe along the present course of the

Trent Valley line to a junction with the London and Birmingham at Rugby. The latter Company and the Grand Junction opposed the scheme, which proved unsuccessful. In the following session it was revived under the title of the Stafford and Rugby Railway, again under the auspices of the

SOUTH END OF PRESTBURY TUNNEL NEAR MACCLESFIELD.

Manchester and Birmingham, and again it proved unsuccessful, chiefly owing to the opposition of the Birmingham and Derby and London and Birmingham. This time, however, the Grand Junction did not oppose it, as it recognised that the construction of such a line was sooner or later

inevitable, and it accordingly took to heart the lesson of Mrs. Partington and her famous mop.

In 1839 the Manchester and Birmingham commenced the construction of the great viaduct over the Dane at Congleton, but the work had not proceeded for very long before the Company came to an agreement with the Grand Junction, which necessitated the abandonment of the viaduct. By this agreement the Manchester and Birmingham abandoned the line through Congleton and the Potteries much to the disgust of the inhabitants of these localities, and converted the Manchester-Crewe section into its main line, a distance of some $30\frac{1}{2}$ miles. By this arrangement the Manchester and Birmingham abandoned some very heavy works, and greatly curtailed the expenditure of the undertaking, while the advantages of this arrangement to the Grand Junction Railway are obvious, as it secured a much greater "mileage" on traffic by receiving it at Crewe instead of near Stafford. The works on the line were of considerable magnitude, especially at Manchester and Stockport. The following description of the works is taken from the British Almanac for 1843: "The railway, as now constructed and in operation, commences at a spacious station in London Road, Manchester, which is to be used jointly by this and the Sheffield and Manchester Railway Company, whose line enters that of the Manchester and Birmingham Company in the part of Manchester called Ardwick, a short distance from the station. The Sheffield Company will pay for the accommodation afforded to them by a toll for the use of the railway and a rent for the use of the station. The railway is conducted through Manchester upon a viaduct on which occurs an extraordinary skew arch, crossing Fairfield Street at an angle of only $24\frac{1}{2}$ degrees. The width of the street is only 48 feet, but owing to the great obliquity of

the angle at which it is crossed, the actual span of the bridge is about 128 ft. 9 in. The bridge consists of six cast iron ribs, four of which sustain the rails, and the other two the parapets; and it is considered to be one of the finest specimens of iron bridge building ever executed. It contains altogether about 540 tons of iron. The viaduct at the Manchester end of the line contains considerably more than a hundred arches, after leaving which the railway proceeds to Stockport, with an alternation of embankment and cutting, but without any work that claims special notice. At Stockport is an immense viaduct, which crosses the Mersey at an elevation of 111 feet, measured to the top of the parapet. The rails are, at this part, about 120 feet above the foundations of the viaduct, which consists of twenty-six arches, of which twenty-two are of 63 feet span. The extreme length of the structure is 1,792 feet, its mean elevation 90 feet, and its width 32 feet; and upwards of 11,000,000 of bricks, together with nearly 400,000 cubic feet of stone, have been used in its construction. The cost of this work was about £72,700. Soon after leaving this viaduct the railway enters a deep cutting, in which occurs a short tunnel, 297 yards long, the only one on the line. On the remaining portion of the line are several extensive viaducts, of which we can only notice the most important. Among these are the Bollin viaduct, which occurs in a curved part of the line, and consists of eleven arches of 49 feet span, of a semi-circular form, built principally of brick. The total length is 630 feet, its mean height 73 feet, its width 28 feet, and cost about £14,360. The Peover viaduct, crossing the river of that name, consists of nine or ten arches of about 40 feet span, and 70 feet high. The Dane viaduct consists of twenty-three arches of 63 feet span, and crosses the river Dane at an elevation of about

95 feet from the surface of the water to the top of the parapet. Its total length is 1,717 feet, its mean elevation 88 ft. 3 in., its width 31 feet, and its total cost was only about £54,000, owing to the almost exclusive use of brick in its construction, and more especially to an economical arrangement by which the centering and scaffolding used for building the Stockport viaduct was removed to this and used without alteration, the proportions of the two structures being the same.

This noble structure must not be confounded with the smaller viaduct over the Dean, which, together with several other interesting works of similar character, must be passed over without detailed notice. The execution of the works generally was such as to call forth the highest encomium from Major-General Pasley, the Government inspector appointed to examine and report upon all lines of railway previous to their opening for public traffic. They have been executed under the superintendence of the Company's engineer, Mr. G. W. Buck, assistant engineer on the London and Birmingham Railway, by whom also the principal bridges and viaducts were designed. The gradients of the line are good: in no case do they exceed an inclination of 1 in 264, or 20 feet in a mile, while in most parts they are much flatter."

The line was opened between Manchester and Stockport, a distance of $5\frac{1}{2}$ miles, on June 4th, 1840, but as the great viaduct across the valley of the Mersey in Stockport was not completed, the first Stockport station was on the north or Heaton Norris side of the town. The viaduct was completed about a year later, and the first train crossed it amidst great local rejoicings on July 30th, 1841; but the rest of the line was then still under construction. On May 10th, 1842, a further section of 21 miles between Stockport and Sandbach was brought into use, and on the same day the new

permanent station in Manchester, situated in London Road, was also opened. The connecting section between Sandbach and the Grand Junction at Crewe was also completed at the same time, but a difference of opinion arose between the Manchester and Birmingham and the Grand Junction over the question of the working of the trains between Crewe and Birmingham, and at the last minute the former postponed the opening of the Sandbach - Crewe section. The dispute lasted for some time, but at length was referred to the Board of Trade, and a solution more or less satisfactory to both parties was arrived at, which resulted in the connecting link between Sandbach

and Crewe being brought into use on August 10th, 1842, thus completing the line throughout between Manchester and Crewe. With reference to the agreement we learn from the British Almanac (of 1843) that "the Grand Junction Company agree to provide locomotive power and all necessary conveniences for working the traffic between Crewe and Birmingham. It was stated at the meeting (Manchester and Birmingham) that the Grand Junction Company will receive for these services 70 per cent. upon the produce of the traffic between Crewe and Birmingham, calculated according to their own scale of fares, either from Liverpool to Crewe, or from Crewe to Birmingham, at the option of the Manchester and Birmingham Company, and for which an adequate rent will be as net profit. This arrangement is made for three years. Owing to the raising of fares on the Grand Junction Railway, in anticipation of the diminution of traffic by the opening of this line, and a recent raising of the fares upon the Manchester and Birmingham line itself, a first class passenger now pays two shillings more for the journey from Manchester to Birmingham than he did formerly, although the distance travelled is about twelve miles less. At the same time one train per diem has been discontinued. This affords a striking proof of the fallacy of competing lines of railway, so far as the interests of the public are concerned." The first general meeting of the company, after the opening of the line, was held on the 2nd of September, 1842, and at this meeting there were some interesting figures given concerning the cost of the undertaking. The directors stated that the amount expended up-to-date was £1,762,931 9s. 3d., and they estimated that this would be increased to £1,890,000 before the undertaking was completed and thoroughly equipped. Amongst some of the chief items was £157,745 7s. 5d. for obtaining the Act of Incorpora-

tion, and preliminary expenses during 1835, 1836 and 1837; £513,019 2s. 6d. for cost of land and compensation; and £901,698 3s. 2d. for works and materials. Included in this expenditure was £50,000 which had been expended on providing station accommodation in Manchester, solely for the benefit of the Manchester and Sheffield Railway, for which the latter would pay as rent a sum adequate to pay interest on this amount. The directors also stated that they expected to receive back some £40,000 for the sale of surplus lands after the completion of the whole undertaking. A curious feature of the Manchester and Birmingham Railway was the fact that it was constructed on a gauge of 4 ft. 9 in., as it was considered that the extra half-inch would give the wheels more "play." The Chester and Crewe Railway, which, as we have already seen, the Grand Junction purchased in 1840 to prevent its falling into the hands of the Manchester and Birmingham, was constructed on a gauge of 4 ft. 8½ in., so thus the three railways radiating from Crewe—the Grand Junction, Manchester and Birmingham and the Chester and Crewe, were all built on different gauges. The stations, permanent way, signals and other equipments of the Manchester and Birmingham Railway, do not call for very much notice, as all the early railways were built on much the same lines, and these affairs have already been fully described in the accounts of the Liverpool and Manchester, London and Birmingham and the Grand Junction Railways. The signalling was carried out by means of coloured discs and pointsmen who resembled policemen. The locomotives were supplied by Messrs. R. Stephenson & Co., and Messrs. Sharp, Roberts & Co., and consisted of the stock pattern of the day, being six-wheel "singles," with a driving wheel of 5 or 5½ feet in diameter, cylinders 12½ inches with a stroke of 18 inches. For

repairing the locomotive and carriage stock, works were built at Longsight, near Manchester, and it is interesting to note that J. Ramsbottom, afterwards locomotive superintendent of the whole London and North-Western, was the locomotive superintendent of the Manchester and Birmingham. The carriage stock was good, externally the carriages were of the "stage-coach" variety then generally in vogue, and consisted of three classes. The first class coaches were divided into three compartments, and comprised two different sorts,

THE CRAMPTON LOCOMOTIVE, *London*, THE FIRST ENGINE WITH A
NAME ON THE SOUTHERN DIVISION.

Built in 1848. Driving wheels, 8 ft. diameter; Cylinders, 18 in. by 20 in. The boiler was of oval section; the firebox extended beneath the driving axle.

one carrying four passengers and the other six, the fare between Birmingham and Manchester by the former being four shillings more than by the latter. A curious announcement of the Company's was that "the first compartment of the leading carriage in first class trains is reserved for servants in livery at second class fares, and other servants in attendance on their employers may ride outside if there be room, by first class trains at the same

rate." The second class coaches somewhat resembled the first class, but, of course, were not finished or fitted up so well, while the third class carriages were open, with no sides and no roof, as was the general practice in those days. Luggage was carried on the roofs of the first and second class coaches, where seats were provided for the guards, who were gorgeously caparisoned after the manner of coaching guards, and who, in addition to looking ornamental and blowing the horn at the stations, worked the brakes from the roofs of the carriages. At this period third class passengers fared very badly, in fact, much worse than cattle do nowadays; far from being encouraged, they were tolerated as a necessary nuisance and that was all; but the Manchester and Birmingham Railway lead the way to better things, and from the first treated its third class patrons in a very generous way. Third class accommodation was provided on all the twelve trains which performed the journey each way daily at a rate of some twenty-five miles per hour. This was a great concession, for third class passengers were at this date generally restricted to one or two of the slowest trains of the day, which started at some unearthly hour and performed the journey between its innumerable halts at a leisurely crawl. In these early days the traffic was sometimes worked in a very curious manner; traffic officers (not only on the Manchester and Birmingham) seemed to have a great liking for excessively long trains, and this was probably due to the primitive signalling arrangements, as the danger of collision was greatly lessened by having one long train, instead of several following one another; on one occasion we read that "at eight o'clock in the evening the last return train, consisting of 112 carriages, containing above three thousand persons, and extending about a quarter of a mile in length,

left Alderley for Manchester drawn by two engines." Unfortunately, it is not recorded at what rate the train travelled, but, anyhow, it was a great performance and speaks well for the locomotive department of the Manchester and Birmingham Railway. Early in its career the Manchester and Birmingham took one rather retrograde step, for soon after its opening it raised the fares between Manchester and Stockport, and this resulted in coaches being put on the road in competition with the railway, which continued until the fares were again reduced. This was by no means an isolated case, as several incidents of a like nature occurred up and down the country in the early days of railways. One of the first problems which the directors had to solve after the opening of the line, was the question of a connection with the other railways in Manchester; it was, of course, connected with the Sheffield and Manchester, as the latter shared its station, but the Sheffield line served a comparatively unpopulous district in the Manchester vicinity, and it was more especially the Manchester and Leeds and also the Liverpool and Manchester lines with which the 'Birmingham' line wished to connect. Accordingly plans were prepared for a junction line uniting the 'Birmingham' and 'Leeds' lines, but, unfortunately, a dispute arose between the two companies and the project was postponed.

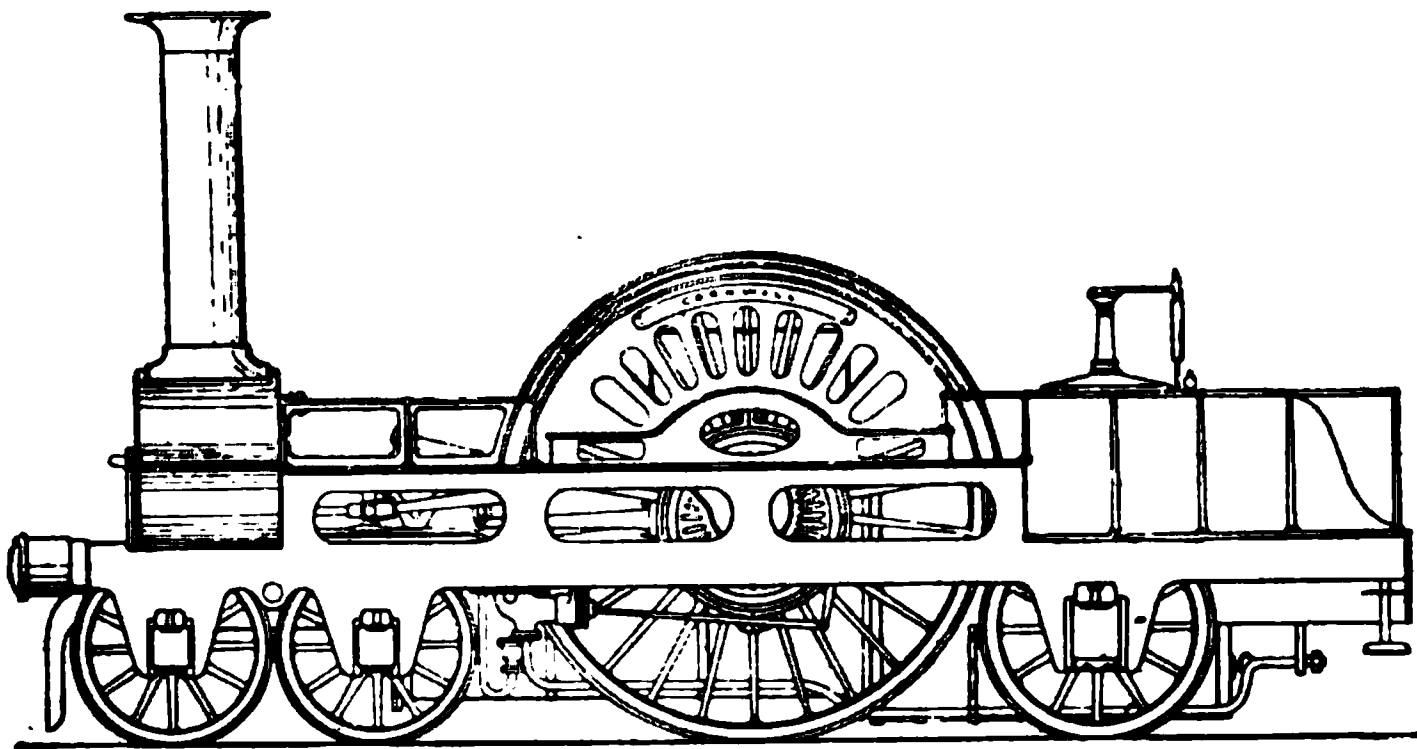
For the year 1843 the Manchester and Birmingham paid a dividend of $4\frac{1}{8}$ per cent., and for the next year 1844 it paid 5 per cent.; railways had by this time proved themselves to be highly remunerative undertakings; previous to this period railways had been promoted in the interests of trade by the commercial classes; but their great success had attracted speculators, and now prospectuses of projected lines began to appear which were nothing more nor less than huge gambles.

In previous chapters we have briefly alluded to the Railway mania, which took place during the years 1844 to 1846. In 1845 Parliament authorised the construction of 2,883 miles of railway, estimated to cost forty-four millions, and this was only a very small part indeed of the lines projected; in 1846 the mania reached its height, and during that session Parliament was asked to sanction the expenditure of £389,000,000 on new railway schemes, and after the prodigious process of separating the grain from the chaff had been carried out, the result was that the raising of £120,000,000 for the construction of 4,790 miles of new railways was sanctioned by Parliament. The 'City,' which had previously treated railways with a rather lukewarm enthusiasm, suddenly awoke to the fact that large dividends were to be obtained from them, and railway stock soon became the most popular security in the country. Railway prospectuses came out every day, every part of the country was honeycombed with proposed lines, every town had its two or three projections, and the shares of nearly all were taken up with avidity. The promoters of these schemes were aided by the easy state of the money market. During the beginning of the mania, at the end of 1843, the bank rate was only $2\frac{1}{2}$ per cent., Consols had soared above par, and money was exceedingly plentiful, and in these circumstances speculative promoters found little difficulty in raising the necessary capital for the most impossible schemes, which could never under the most favourable condition, hope to pay a dividend. Dr. Smiles tells us "a reckless spirit of gambling set in, which completely changed the character of Railway enterprise. The public outside the Stock Exchange became also infected, and many persons utterly ignorant of railways, knowing and caring nothing about their national uses, but hungering and thirsting after premiums,

rushed eagerly into the vortex. They applied for allotments, and subscribed for shares in lines, of the engineering character or probable traffic of which they knew nothing. Provided they could but obtain allotments which they could sell at a premium, and put the profit—in many cases the only capital they possessed—into their pockets, it was enough for them. The mania was not confined to the precincts of the Stock Exchange, but infected all ranks. It embraced merchants and manufacturers, gentry and shopkeepers, clerks in public offices, and loungers at the clubs. Noble lords were pointed at as ‘stags’; there were even clergymen who were characterised as ‘bulls’; and amiable ladies who had the reputation of ‘bears’ in the share markets. The few quiet men who remained uninfluenced by the speculation of the time were, in not a few cases even reproached for doing injustice to their families, in declining to help themselves from the stores of wealth that were poured out on all sides. Folly and knavery were for a time completely in the ascendant. The sharpers of society were let loose, and jobbers and schemers became more and more plentiful. They threw out railway schemes as lures to catch the unwary. They fed the mania with a constant succession of new projects. The railway papers became loaded with their advertisements. The post office was scarcely able to distribute the multitude of prospectuses and circulars which they issued.”

Everyone was mad on railway shares, a wave of temporary insanity seemed to sweep over the country, even the most careful of men plunged in the hope of making a fortune, and many were small capitalists who threw away their life’s saving in the fond belief that they were quadrupling it. At the beginning of the mania, enormous fortunes were made, and many of the promoters reaped rich harvests, but most of

the country speculators, who had come in late and purchased their stock at huge premiums, found that that Will o' the Wisp fortune was further off their reach than ever. For some time the "mania" reigned supreme, then it collapsed; and after the boom came the slump. A panic ensued, and even the most highly respectable railways, railways which were bound to be profitable, found the task of raising their capital a well-nigh impossible one, while even the well-established and profitable companies were in many cases hard hit. Mr. John Francis has given us the following graphic account



THE *Cornwall* AS ORIGINALLY CONSTRUCTED WITH THE BOILER
BELOW THE DRIVING WHEEL AXLE.

of the misery which the panic entailed. He writes: "It is the conviction of those who are best informed that no other panic was ever so fatal to the middle class. It reached every hearth, it saddened every heart in the metropolis, entire families were ruined. There was scarcely an important town in England but what beheld some wretched suicide. Daughters delicately nurtured went out to seek their bread. Sons were recalled from Academies. Households were separated; homes were desecrated by the emissaries of the law. There was a disruption of every social tie.

The debtors' jails were peopled with promoters, Whitecross Street was filled with speculators ; and the Queen's Bench was full to overflowing. Men who had lived comfortably and independently found themselves suddenly responsible for sums they had no means of paying. In some cases they yielded their all and began the world anew, in others they left the country for the continent, laughed at their creditors and defied pursuit. One gentleman was served with 400 writs. A peer, similarly pressed, when offered to be relieved from all liabilities for £15,000, betook himself to his yacht and forgot in the beauties of the Mediterranean the difficulties which had surrounded him. Another gentleman who, having nothing to lose, surrendered himself to his creditors, was a director of more than twenty lines. A third was provisional committee-man to fifteen. A fourth, who commenced life as a printer, who became an insolvent in 1832, and a bankrupt in 1837, who had negotiated partnerships, who had arranged embarrassed affairs, who had collected debts and turned his attention to anything, did not disdain also to be a railway promoter, a railway secretary, a railway director, or to spell his name in a dozen various ways. By the suddenness of the crisis, the cunning of promoters and provisional committee-men fell upon themselves. They had delayed answering applications until it was too late to make a profit ; they had meant to reserve a sufficient number to make their own fortunes ; but when they saw premiums give way to discounts, when there was no price quoted for their scrip, when the public looked shy, and the brokers would not look at all, they were most liberal in issuing letters of allotment, and most unjust in demanding payment. Those who had requested fifty shares expecting five—about the proportion hitherto granted—found they were graciously allowed all

they demanded. To pay would have been ruin. Not to pay was to be involved in law. Such was the melancholy close of the high hopes of the memorable spring and summer of 1845."

But we have followed the course of the mania too long, and must return to the affairs of the Manchester and Birmingham Railway. We have previously seen in the chapters on the London and Birmingham and Grand Junction Railways, that in 1844 those two lines entered into an alliance, owing to the large number of competing schemes which threatened them both; one of the points settled was the much discussed question of the "Trent Valley" line. Proposals for making this line had been repeatedly brought forward under various titles and auspices, as it promised to effect a considerable saving in the distance to the north; and so at length recognising it as inevitable, the London and Birmingham and Grand Junction came to an agreement as to its construction, thereby effectually blocking the way for any hostile and competitive schemes; by this arrangement it was settled that the Trent Valley Railway was to be proceeded with under the auspices of the London and Birmingham and Manchester and Birmingham Railways. For the year 1844 the Manchester and Birmingham paid the respectable dividend of 5 per cent. We have previously noted that what had been originally intended to form the main line of the scheme, the line through Congleton and the Potteries, had been abandoned in favour of making the Crewe Section the main route, and the authorised branch to Macclesfield had also at this date not been completed, and as the powers for making it expired in 1844, the company in the session of that year obtained new powers for making a Macclesfield branch. This Macclesfield branch, together with other lines either authorised or projected, the Trent Valley and Churnet Valley

lines, promised to carry out the original ambitions of the promoters of the Manchester and Birmingham. The London and Birmingham Railway, perceiving the importance of these lines as a short through route to Manchester and Lancashire, concluded arrangements for amalgamating with the Manchester and Birmingham, Churnet Valley, and Trent Valley Railways. This greatly incensed the Grand Junction, which proclaimed it a breach of the agreement of 1844, and (as we have seen previously) this caused much ill-feeling between the London and Birmingham and Grand Junction lines. The efforts of the Manchester and Birmingham and the London and Birmingham to amalgamate proved abortive, and the former continued on its independent way. The Trent Valley Railway was authorised by Parliament in 1845, and by its Act of Incorporation the Manchester and Birmingham was empowered to subscribe £277,780 to it. The Trent Valley was, however, soon afterwards absorbed by the London and Birmingham. The other partner in the amalgamation 'that might have been,' the Churnet Valley, escaped the 'Euston net,' and ultimately formed one of the chief component parts of the North Staffordshire Railway, a railway which has been on more than one occasion nearly 'landed' at 'Euston.'

It gives us some idea of the primitiveness of third class travel at the time, when we find that the Manchester and Birmingham in 1845 made a great improvement in the third class accommodation by placing lamps in the carriages. A railway publication of the time remarked that it was an item of comfort not very costly, and conducive to good behaviour amongst third class passengers just as much as gas was in the public streets. The year 1845 was a very important one in the history and development of the Manchester and Birmingham Railway, and at the same time was a very prosperous

one, the Company paying a dividend of $6\frac{1}{2}$ per cent. It was during the session of this year that the Manchester and Birmingham secured Parliamentary sanction to construct a line from its system near Stockport to the important town of Ashton-under-Lyne, thus obtaining the stem from which extensions to Leeds and Yorkshire were afterwards constructed, which has since developed into one of the most important cross-country routes in England. It was also during the session of 1845 that the Manchester South Junction and Altrincham Railway was sanctioned,

THE *Cornwall*, AS REBUILT, WITH BOILER ABOVE THE AXLE.

to which the Manchester and Birmingham was authorised to subscribe £175,000. The Manchester South Junction and Altrincham, besides providing a line to Altrincham and the growing south-western suburbs, proposed to link up the lines of the Manchester and Birmingham and Sheffield and Manchester Railways with that of the Liverpool and Manchester section of the Grand Junction, thus providing a most important outlet for the Manchester and Birmingham. During this year the latter came very near to absorbing the

Sheffield and Manchester, but in the end the 'Sheffield' drew back, as it preferred to retain its independence, and it soon afterwards amalgamated with several other lines into the Manchester, Sheffield, and Lincolnshire Railway. Towards the end of 1845 the directors of the London and Birmingham and Grand Junction seem to have at last realised what one would have thought must have been fairly obvious for years, namely, that the union of the two lines was an absolute necessity in the interest of the two companies. This reconciliation between the Grand Junction and the London and Birmingham naturally removed the objections of the former to the previously arranged amalgamation of the London and Birmingham with the Manchester and Birmingham, and accordingly the latter was also included in the projected union, and a bill for the amalgamation of the three railways was lodged in Parliament. The financial part of the arrangement, so far as it affected the Manchester and Birmingham Company, was as follows:—

"The terms of the agreement are that the capital of the Manchester and Birmingham Railway be taken at £2,800,000, £700,000 of which is not to be entitled to any dividend before the 1st of February, 1849, but may be calculated at any time. The powers of the Manchester and Birmingham Railway under the Acts to raise additional capital are not to be exercised without the consent of the London and Birmingham Railway. The London and Birmingham Railway to guarantee to the Manchester and Birmingham Railway Company a dividend of 8 per cent. from the 1st of February to the 31st of July, 1846, on their paid-up capital of £1,440,000. From that date to the 1st of February, 1847, at the rate of 9 per cent. per annum, on the portion paid up

of the capital of £1,800,000, from the 31st July, 1847, at the same rate as the portion paid up of the capital of £2,100,000, and from on and after the 1st of February, 1848, a dividend on the same capital at a rate equal to what may be paid out of the united profits of both companies to the London and Birmingham Proprietary. On 1st of February, 1849, the capital of £700,000 will be placed on the same footing as the capital of £2,100,000, making altogether a total capital of £2,800,000."

CHAPTER V.

1846.

THE LONDON AND NORTH-WESTERN RAILWAY—ITS
CONSTITUTION—FIRST REPORT—AND FIRST
MEETING.

We have now dealt with all the chief component parts of the original London and North-Western Railway ; the London and Birmingham, the Grand Junction, included in which was the Liverpool and Manchester and the Manchester and Birmingham Railways. As we have previously narrated, these three lines agreed to amalgamate ; a Bill for this purpose was lodged in Parliament, and proving successful received the Royal Assent on July 16th, 1846, and thenceforward by Act of Parliament (9 and 10 Vic., cap. 204) the three lines were amalgamated as the London and North-Western Railway Company. The amalgamation was almost a necessary corollary to the geographical situation of the three companies' lines, and looking back now it only seems surprising that the union did not take place before it did, but it was probably retarded by local jealousies, which were very prevalent in early railway history. A good example of this petty strife was shown over the question of management of the Grand Junction Railway ; originally it was intended to draw the directors from each extremity of the system, Liverpool and Birmingham, but the Liverpool party managed to get the management into their own hands, which so annoyed the leading inhabitants of Birmingham that they disdained to take any notice of the opening of the line, and this probably accounted for the comparatively quiet

opening of the Grand Junction line. Prior to the negotiations being concluded for amalgamation, the three lines occupied somewhat paradoxical positions, and so involved were their arrangements that it must have been apparent to all that there was only one satisfactory solution to the problem, and that was by cutting the Gordian knot and amalgamating. The position was briefly this: the London and Birmingham Railway possessed a line from London to Birmingham, and by means of the Trent Valley Railway (under construction) from Rugby to

LONDON ROAD STATION, MANCHESTER.

Stafford, it had arranged to amalgamate with the Manchester and Birmingham Railway, and also to lease the Chester and Holyhead Railway, but to reach these lines it had to pass over considerable stretches of the Grand Junction, with which it was by no means on the best of terms. The London and Birmingham was the only route to the north, and handed over its traffic for conveyance northwards to the Grand Junction and to the Midland Railways. The Manchester and Birmingham Railway was such in name only, as its main line from

Manchester only reached as far as Crewe, where all its traffic for Birmingham, the south, and the London and Birmingham Railway had to be handed over to the Grand Junction. The position of the latter was perhaps the strongest of the three; it formed the connecting link between the other two, and served with its own lines Birmingham, Manchester and Liverpool. It also possessed various branches, including lines to Chester and Bolton, and by means of the North Union Railway, which it had agreed to lease jointly with the Manchester and Leeds Railway, it ran as far north as Preston, while northwards lay the Lancaster and Preston and Lancaster and Carlisle lines, the latter under construction, which promised to carry on the connection to the borders of Scotland. From this brief *resumé* of the position before the amalgamation, it will readily be seen that the situation was, to say the least, somewhat Gilbertian and not satisfactory to any of the three companies, and that the natural solution of the problem was an union of interests. By the amalgamation, the main line from London to as far north as Preston, was placed in the hands of a single company, and the lines connecting London, Birmingham, Liverpool and Manchester (by far the four most important towns in the kingdom) with one another were placed under one management. Such was the heritage which on its birth the London and North-Western Railway received from its predecessors. The capital of the united concern was £17,242,310, which was considered a prodigious total at the time. The capital was made up of the following amounts: London and Birmingham, £8,653,750; Grand Junction, £5,788,560; and the Manchester and Birmingham, £2,800,000. There were, in addition, various loans of the three companies amounting to £5,747,310, which brought the total up to £22,989,620. It was arranged that the

amalgamated concern should be managed by an united board consisting of directors drawn from the boards of the London and Birmingham and Grand Junction, in the proportion of eight of the former and six of the latter, which board should settle all matters of general policy. It was further agreed that the details of working the London and Birmingham section should be managed by a committee of twenty-four directors sitting in London, and it was arranged that the Grand Junction section should be managed by a northern committee of eighteen directors sitting in Liverpool. The first chairman of the London and North-Western Railway was George Carr Glyn, who was afterwards raised to the peerage as Baron Wolverton, a title which he took from the locomotive and carriage building headquarters of the London and Birmingham Railway. He was one of the original directors of the London and Birmingham, and was chairman of that line from 1837 until it lost its separate identity. Soon after the amalgamation Captain Huish, previously manager of the Grand Junction, was appointed general manager of the London and North-Western. The superintendence of the locomotives and rolling stock of the line was divided into two sections, a northern and a southern, a somewhat curious practice resembling the northern and southern committees of the board. Edward Bury, who retired from the post of locomotive superintendent of the London and Birmingham, was succeeded by McConnell in the charge of the southern division, with headquarters at Wolverton; and F. Trevithick, formerly with the Grand Junction, continued at Crewe and was placed in command of the whole northern division. The total length of line of the united undertaking was 420 miles, which was at this date the largest in the kingdom. The first report of the London and North-Western Railway was issued in

the middle of 1846, and it is of such interest that we will quote it in full :—

“ The first Half-yearly Report of the London and North-Western Railway for the six months ended 30th June, 1846.

“ The Directors are happy to report that the Act To Consolidate the London and Birmingham, Grand Junction and Manchester and Birmingham Railway Companies, received the Royal Assent on the 16th July last.

“ In meeting for the first time the shareholders of the London and North-Western Company, the Directors have great pleasure in being able to inform them that the traffic for the half-year, on the three lines which are now under the control of the Amalgamated Company, exceeds considerably in each case that of the corresponding six months of last year, and that this observation applies to the three divisions in which railway traffic is usually classed, namely : Coaching, Merchandise, and Coals.

“ But while an increased traffic on all the lines indicates the prosperous state of the concern, the Proprietors will recollect that from the greater amount of capital entitled to a dividend, a larger sum is now required to pay the same rate ; while at the same time the six months just ended constitute the least productive half-year. It will consequently be necessary to encroach to some extent on the Reserve fund, which the Proprietors allowed the Directors to lay by after providing for the last Dividend.

By the accounts which will be laid	£	s.	d.
before the meeting, it appears			
that the nett proceeds of the			
Amalgamated Concern for the			
six months are	543,929	4	4
To which must be added the			
Surplus fund, amounting to ...	166,105	12	3
Making an available balance of ...	<u>£710,034</u>	<u>16</u>	<u>7</u>

	£	s.	d.
The Directors recommend a Dividend of 4 per cent. on the Manchester and Birmingham Capital of £1,440,000 in conformity with the provision of the Act	57,600	0	0
And of £5 per £100 share on the remaining Capital	549,789	3	0
Which will together amount to ...	607,389	3	0
And leaving a balance of... ..	<u>£102,645</u>	<u>13</u>	<u>7</u>
to be carried forward as a Surplus fund to the next half-year's account.			

“The Directors will now beg leave to state to the Proprietors the result of their proceedings in Parliament in the session which is about to close. It will be seen that the extent of new works contemplated at the commencement of the session has been very much curtailed.

“The Acts obtained this session for new lines are as follows, with the estimated capital required to carry them into effect:—

“London and Birmingham—Euston Extension, £150,000; Birmingham Extension, £350,000; Stour Valley Line, £300,000; Weedon and Northampton, £125,000; Rugby and Stamford, £500,000; Rugby and Leamington, £135,000; Leamington Extension, £85,000: Total, £1,645,000. Grand Junction—Huyton and Ashton, etc., £1,150,000; Huyton and Warrington, £180,000; South Staffordshire, £187,500; Showhill and Portobello, £100,000: Total, £1,617,500; Trent Valley, about £1,400,000; Manchester and Birmingham, £25,000; Grand total, £4,687,500.

“The Directors have taken into their consideration the most expedient mode of providing the requisite capital for carrying into effect these several works; and in conformity with the powers granted by the Legislature for the purpose, they

propose a creation of £25 Shares to the extent of £4,687,500, being the amount of capital required as above stated, and that one new share of £25 be allotted to the owner of every £100 share or £100 stock. But in order that this new creation may press as little injuriously as possible on the existing stock, it is proposed, in the first instance, that a call of £2 per share be made, which shall not be entitled to interest or dividend till a further call is made. Second, that the remaining calls shall be made as follows: £5 per share in July, 1848; £5 per share in July, 1849; £5 per share in July, 1850; £5 per share in July, 1851; £3 per share in July, 1852. Such calls being entitled to dividend at the rate of 4 per cent. per annum from the date when they severally become due, till the whole amount be called, after which the holders of the New Quarter Shares will receive dividends rateably with the general stock of the Company. Should the foregoing scheme obtain the sanction of the meeting, resolutions will be submitted to carry the same into effect.

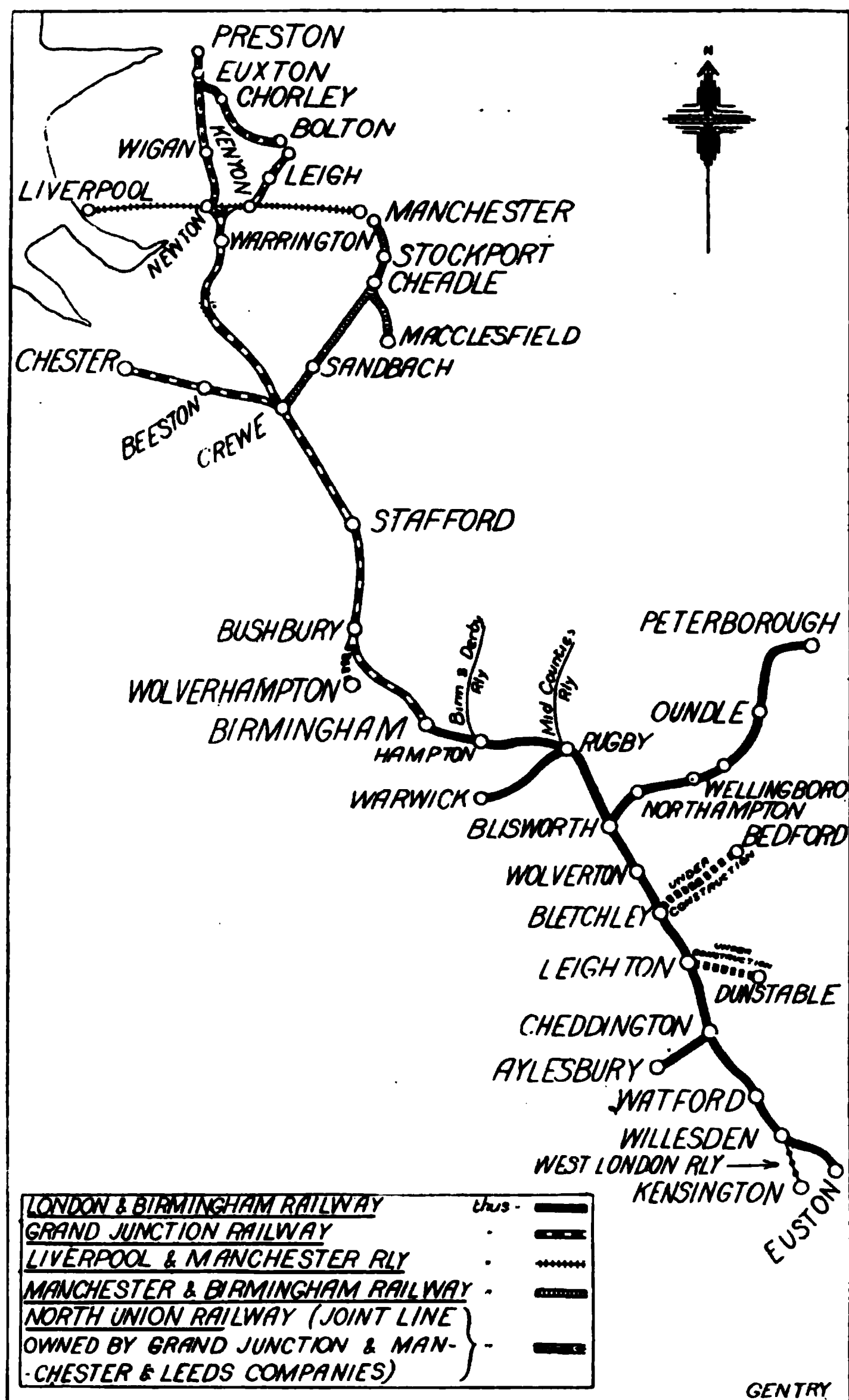
“In reference to the general management of the London and North-Western Railway, it is obvious that much advantage may be expected from uniformity of system and concentration of authority, on all matters of general policy or mutual arrangement—while at the same time the Directors will be anxious to obviate as far as possible in regard to the Northern Division, whether in reference to shareholders or the public, any inconvenience which might be apprehended from the principal office being in London. It is presumed that the Liverpool and Manchester Offices will afford such information, and answer all such purposes of a Central Office, as may be required by the locality. Transfer for Registration, or Certificates for endorsement, if left at the Liverpool or Manchester Office, will be considered

as delivered to the Company ; and the transmission of documents to and from London, being effected in the night, it is hoped that very little delay or inconvenience will be experienced.

“ The Proprietors may be aware that the Grand Junction Company, prior to the amalgamation, entered into an agreement in conjunction with the Manchester and Leeds Company for the leasing, in perpetuity, of the North Union Railway. This agreement is now confirmed by Act of Parliament, and during the last six months the North Union Line has been worked conjointly with the Lessee Companies. This engagement of lease was undertaken by the Grand Junction Company on grounds of general policy, and with a view to the promotion of the great North and South traffic, with the risk of some temporary loss in the working of the North Union Line. The traffic of the Line having considerably increased since it has been under the direct management of the Lessee Companies as compared with what it was in the hands of the common carrier (arising principally from the change of system in the carriage of goods), the Directors have reason to expect not only that their general anticipation of benefit to the North and South traffic will be realised, but that this result will be accomplished without loss on the North Union lease, considered by itself.

“ The Directors are glad of this opportunity of acknowledging the long and valuable services of the principal engineers of the two divisions of the Railway, Robert Stephenson, Esq., and Joseph Locke, Esq., and are persuaded the Proprietors will join them in this feeling. They propose, accordingly, that two sums of one thousand guineas each be appropriated for providing suitable testimonials.

“ At the first General Meeting of the London and North-Western Company, the Directors are



THE RAILWAYS THAT BECAME THE LONDON AND NORTH-WESTERN RAILWAY SYSTEM IN 1846.

anxious to express the high sense which they entertain of the confidence which for many years they have experienced from the Proprietors, while members of the several Directions, now united into one Board. They are sensible of the extended responsibility which devolves on them, in entering on the duties of so large an undertaking, whether contemplating their obligations in reference to the shareholders, or to the public. They will endeavour to justify the trust hitherto reposed in them.

GEORGE CARR GLYN,
Chairman."

At the first general meeting of shareholders held at Euston on August 7th, the Chairman (Mr. Glyn) in his speech gave such a lucid description of the position of the Company that we will conclude this chapter by quoting an extract from the report of the proceedings. The Chairman spoke as follows:—

"Gentlemen, from the notice which has just been read to you, you will perceive that we are now about to hold the first meeting of the London and North-Western Railway Company. It is to us a matter of unmixed satisfaction to see you convened together under our recently passed Act of Parliament with that title, for although, on the part of my colleagues and myself, we have always received much gratification in meeting the Proprietors of the London and Birmingham Railway Company, and although we have left that concern under its old name in so prosperous a state, it is a matter of extreme gratification to us to find that the great measure we have advocated for some time past has at last received the Royal Assent. I am sure that no words are necessary in this room on that subject. The approval which this measure has from time to time received from the proprietors

speaks your feelings in reference to it—in fact I may say that eventually it arose as a matter of course; and certainly as regards the Grand Junction Company, perhaps the only wonder is that the union did not take place at an earlier period. It was the original intention of the promoters of both undertakings to carry on these concerns conjointly; but we all know the difficulties which, at the commencement of these great undertakings, the Directors and Proprietors experienced in seeking to carry on, even divided as they were, the two Companies. It is impossible for us yet to represent to you the full effects which, both as regards your own interest and those of the public at large, we hope may be derived from the fact of the amalgamation itself.

“We shall not forget that we have great interests to deal with in the position which we now occupy—that as regards the mercantile wants of Liverpool and Manchester, and the other towns under our care, it is our duty to carry out to the fullest possible extent the advantages which have been brought before the legislature as likely to result from the amalgamation. But it is only right to state that finding, as we do, three separate and large bodies acting, I may say, on three different systems, it would be irrational in us, and rash and unwise, to move on too hastily in re-adjusting the system upon which hereafter the whole may be carried on. We do look in many respects for important results from the new duties we have undertaken. It is not only a source of great gratification to have this measure now carried out to the fullest extent; but individually and personally, on the part of my late colleagues and myself, I do not hesitate to say that we have the greatest possible satisfaction in finding ourselves now so closely connected with those upon which we must ever look as the great promoters and

movers in railway projects—to whom, in point of fact, the merit of having carried the system out principally belongs—who during the time, when I might almost say, the first propositions with regard to railways were received with a degree of scorn and sneering—when Parliament at first took part against them, when the public were incredulous as to their results,—nevertheless persevered in that great undertaking which has led to so many others, the Liverpool and Manchester Railway. And, gentlemen, I do not hesitate to say that I feel I occupy improperly the chair on this occasion in the presence of my honourable friend Mr. Lawrence, who was one of the most strenuous

OLD 'SINGLE' EXPRESS LOCOMOTIVE, *Locomotion*, CONVERTED TO AN ENGINEER'S INSPECTION COACH.

promoters, one of the earliest and foremost advocates of the system, and who was mainly instrumental at the time in carrying forward the Liverpool and Manchester Company. It is rumoured—and as I scarcely can believe it, I allude to it only as a rumour—that the Companies which hitherto have been successful in their results are likely soon to be brought under the notice of Parliament, with a view of showing to the public the 'enormous profits,' as they are called, which are supposed to have been derived from some of the railways. It is not in this room, nor in the presence of the Proprietors of the former Liverpool and Manchester, Grand Junction, or London and

Birmingham Company, that we can deny the existence of large profits; but we say that these profits were fairly earned, we say that we undertook a very great experiment, and we have carried it out successfully. And, gentlemen, as regards particularly the London and Birmingham, I state publicly and openly that, as to the creation of new shares, which is the point I understand likely to be commented upon, I say with regard to the creation of new shares, that when we were forced by the great increase in our outlay, by the cost far exceeding the original estimate, when we were driven to Parliament to ask for new powers for the purpose of completing the London and Birmingham Railway, the subject underwent a long investigation before the Committee of the House of Commons appointed on that particular Bill; and the result, gentlemen, was this, that we were *ordered* to allocate the new shares among our Proprietors at par. And, gentlemen, this was only an act of justice and equity, and an act of policy. It was, I say, an act of justice. We asked for no new powers, we asked no addition to the rates on which our calculations of traffic were based; but we asked what was not a very pleasant thing for the proprietors in those days, we asked only the power of doubling our capital for the purpose of carrying out the original intention of the Legislature. And if there were any benefit possibly to arise from those creations of shares, to whom was the benefit to be given? Can there be any doubt that those who invested their money in the first instance were the only parties who ought to receive any contingent benefit from increasing their outlay? And what was the fact? Why, if these shares had not been offered to the Proprietors at that moment, the result would probably have been that the works would have lingered. The money market, at the time to which I refer, was in a state of the deepest

gloom ; and I believe that had it not been for the untiring energy of the large Proprietors of the London and Birmingham Company, year after year would have passed without our being able to find the necessary funds for the completion of our works. Gentlemen, I think it rather too hard that when a great undertaking like this is successful, we should now be asked to account for those profits, which are not the profits of one or two individuals, but profits circulated over the whole country. Railway property changes hands every day, and I do maintain, therefore, that under the circumstances it is an invidious thing to hold us up as having, if I may be allowed the expression, 'sacked' these large profits. Gentlemen, I am very anxious not to occupy your time unnecessarily on the present occasion ; and as the report is of some length, I would much rather refer you to that document for further information respecting our proceedings. But it will, I think, be expected of me that I should say a word or two on those different projects which have from time to time received your approval, and which we subsequently brought before Parliament.

"Gentlemen, our success in Parliament this year has been of a very chequered character, so far as the London and Birmingham Company is concerned. I need not enter into the question as regards the other, because the Grand Junction have carried every Bill they had before the legislature, but as regards the London and Birmingham, we have lost several very important measures. We have lost during the progress of this session the whole of those which we designated to you as the Warwickshire Lines — the Hampton and Ashchurch Bill, the Hampton and Banbury Bill, and the Worcester and Weedon Bill—and, what is the worst part of the case, our opponents have carried the Birmingham and Oxford Bill. With

regard to the other measures, we have been generally successful. They are not of any very great importance in themselves. We have lost the St. Albans and Luton Bill, but that scheme may be renewed, as our opponents have lost their line also. We withdrew the Newport Pagnell line and one or two of the smaller projects, but, on the whole, I think we have come out fortified, if I may say so, considerably in our position by the proceedings in Parliament. But looking at the discussions which have gone on in the present session, we cannot conceal from ourselves this fact, that when we look at the South-Western Company we find the Direct Portsmouth line carried against them; if we look at the Norfolk lines, we find competition carried into that quarter also; we find the London and York Bill passed; we find in Scotland, also, the principle of competition laid down. We find, moreover, in our own case the Oxford and Birmingham Bill passed, and although the measure has not yet been carried, it has been intimated that the principle of competition is to be carried out in another session in reference to the Exeter lines. I may say, therefore, that the principle of competition must be assumed as one generally adopted by Parliament. We, gentlemen, have not altered our views in the least on the merits of that notion. We believe that if the legislature had exercised a wise discretion they would have acted on the doctrine so ably laid down by the Board of Trade, and would have encouraged, under proper regulations, the completion of the system of existing railways, rather than have promoted the dangerous and, I believe, the impolitic, the inexpedient and futile doctrine of railway competition. But, gentlemen, competition we must be prepared for, and if we had no other argument for pressing upon you originally the connection with the companies with whom we are now so happily united, it would have

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SOME SPECIAL TYPES OF BOGIE GOODS VEHICLES.

1. Tramcar truck with sloping ends, Load 15 tons. 2. Boiler truck, with 40 ft. well; Load 15 tons. 3. Long timber truck, with 4 bolsters: Load 30 tons. 4. Flat bottom pig-iron or machinery truck: Load 40 tons (has been tested to 60 tons). 5. Plate glass well truck: Load 10 tons.

been found in the doctrine of competition brought forward this session. Your property will be rendered infinitely more safe by the amalgamation now matured, and we think we are in a position to carry on competition, for any company commencing competition with us must set out with a very large reduction on our existing rates, for, without any exception, I may say that although some companies approach us in lowness of charge, very few, and none in the neighbourhood of London, with one exception, are so low.

“Gentlemen, the passing of these several Bills will, of course, require an addition to your capital, and when I mention that fact, I think that it is only right that I should point out to you that many of the Bills we have carried this session are Bills more of a protective character than measures from which we look for any large or, at least, any new return. We were obliged to carry Bills for the improvements in our stations at Liverpool, Manchester, Birmingham and London, and from the outlay on these works I can scarcely hold out to you the hope of any new return, and the same remark applies to several Bills which the Grand Junction Company have obtained. I mention this for the purpose, although I hope it may be distinctly understood that I here speak only in my individual character, and do not wish to commit any one of my colleagues to the opinion I am about to utter, I look forward to this, that when the works for which new shares are to be created are finished, it will be impossible for us to keep up upon the whole of our capital the existing dividend.

“Gentlemen, it has been a principle with the directors of the London and Birmingham Railway never to conceal anything from their proprietors, and it is right, therefore, that in these early days I should make you acquainted with my own individual feelings on this point. It will, of course,

be some time before this new capital can be brought into operation, and it is impossible, looking at the skill, the enterprise, and the industry of this country, to say what may not in the interim take place. Many of my colleagues are sanguine in their hope that, even with the great increase which we propose to-day, we may be able to keep up the present dividend. This, I repeat, is not my opinion; but the opinion I entertain I only offer in my individual capacity. I will not now mention, for it would only forestall the report, the mode in

CIRCULATING AREA, EXCHANGE STATION, MANCHESTER.

which we propose to create the new capital; but we do mean immediately to make a creation of London and North-Western stock. Gentlemen, I will not trespass upon you much longer, for I am quite sure you will be anxious to hear the authentic document of the day, namely, the Report of the Directors; but I cannot resist, upon this the first occasion of meeting under your new name, alluding to a vote to which your sanction will to-day be asked. It is, I may say, the partial discharge of a

debt of gratitude we owe, and have long owed, to both our engineers. We have now the advantage of having secured for the amalgamated companies the services of both Mr. Robert Stephenson and Mr. Locke, a combination of talent of which we may justly be proud. They have, individually, as you are well aware, served the two companies for a long time past, and although the amount we propose to you cannot be considered as anything which is at all a compensation, or worthy of their merits, still I believe you will receive with approbation the resolution which will be tendered to you by the Directors with regard to these two distinguished individuals. The compliment is unexpected by them, and I think it will be received with great satisfaction. We mean to propose for your sanction, before this meeting closes, that a testimonial, in some shape or other, of the value in each case of 1,000 guineas, be offered to Mr. Robert Stephenson and Mr. Locke by the Proprietors of the Company. With these remarks I will now call on Mr. Booth to read the report, and if there should be any points on which you wish for any explanation in my power to give, it will be a source of great satisfaction to me to be able to render it." In reply to the enquiry of a Proprietor when calls would be made on the quarter and fifth shares, the Chairman said : " It would be difficult to speak of more than a year hence, but it was the intention of the Directors to call up £5 every three months on the Grand Junction quarter shares, and £5 in July of next year on the London and Birmingham quarter shares, that the fifths would be called up before the new quarters, but much depended, in all cases of the kind, on the state of the money market."

CHAPTER VI.

1846—1849.

COMPETITION AND EXTENSION—THE BATTLE OF THE GAUGES.

We have now witnessed the inception of the London and North-Western Railway, a railway with the great capital of over seventeen millions, but although the amalgamation abolished the rivalry and petty strife which had previously existed between the contracting parties, the new organisation soon found itself face to face with fresh competition on all sides, and was immediately forced into a large expenditure of capital in order to safeguard and preserve its territory ; and indeed the improvements and extensions of the system, for which Parliamentary powers were obtained during the same session as the Amalgamation Act, entailed an estimated expenditure of considerably over five and a-half millions, an enormous proportionate addition to an existing capital of seventeen millions. Very wisely indeed did the Chairman utter these words at the first meeting : "When the works, for which new shares are to be created, are finished, it will be impossible for us to keep up upon the whole of our capital the existing dividend." Words which were, alas, to prove only too true, as the 10 per cent. dividends of the London and Birmingham and Grand Junction (although it is true the amalgamated concern paid the same in 1846) declined to $8\frac{1}{2}$ in 1847, 7 per cent. in 1848, $6\frac{1}{4}$ per cent. in 1849, $5\frac{1}{4}$ per cent. in 1850, and 5 per cent. in 1853. But it is probable that nobody, not even the Chairman, would have believed in 1846

that the 10 per cent. dividend would be reduced to 5 per cent. by 1853, the dividend thus being halved in the space of seven years. In seeking to find reasons for this remarkable decline of dividend, we must attribute it partly to the large capital expenditure on more or less unproductive improvements, and on the offensive and defensive extensions which were virtually forced on the management, extensions which, had they not been undertaken by the Company, would assuredly have been constructed by other parties, and which would, under these circumstances, have abstracted large portions of the legitimate traffic of the North-Western Company. But the chief cause for the decline of dividend was undoubtedly competition. In the early railway days, when railways were scattered over the country and were few and far between, there was practically no competition. The Birmingham and Derby and the Midland Counties Railways, authorised in 1836, were the first example of real competition; and after this the policy of Parliament became definitely favourable towards the doctrine of competition, though it is only fair to add competition within reasonable limits. The London and Birmingham Railway had, from its inception until the amalgamation, been singularly free from competition, and from its opening it had been the only railway providing communication between London and the North, obtaining the London traffic of the Grand Junction, Liverpool and Manchester, Manchester and Birmingham, Midland, York and North Midland, and indeed of all the provincial railways in the Midlands and North. The London and Birmingham thus had the monopoly of the traffic to the North and Midlands, and consequently waxed fat and prosperous, paying 10 per cent. dividends. Such a state of affairs naturally attracted railway promoters, and with the benefits of railways to the community fast becoming recognised,

it is not surprising that the London and Birmingham soon had several rivals in the field. In the early forties, as we have previously seen, there was great railway activity, and one of the most popular projects was for a new trunk line on the eastern side of the country. The Eastern Counties Railway projected a northern extension through Cambridge and Lincoln, while the London and York and Direct Northern schemes also proposed to fill up the same district. Such a line, if made, was bound to divert a large amount of traffic from the London and Birmingham Railway, as it would supply a much shorter route to Yorkshire and the north-eastern districts. Therefore it is not surprising that the London and Birmingham, and also the Midland, viewed these projected lines with great alarm, and did all in their power to prevent them being made. As one of the best means of doing this, the London and Birmingham itself projected an extension of its own system into the district, and in 1843 secured powers for a branch from Blisworth to Peterboro', and shortly afterwards the Midland obtained powers to extend its system to Peterboro', and also to Newark and Lincoln. But the routes to these places were very circuitous, as indeed was the existing route to Yorkshire and the north-eastern districts *via* Rugby and the Midland Railway, and it must have been apparent that these populous districts could not put up with this roundabout route for ever, and that a new line on the eastern side of England was bound to be made sooner or later, although naturally the London and Birmingham and Midland Railways' desire was to put off the evil day as long as possible. To cut a long story short, the various schemes squabbled and fought among themselves, but afterwards joined forces, then after a lengthy hearing in Parliament, unparalleled in the annals of railway history, a Bill for the

incorporation of a "Great Northern Railway" was passed in 1846, the session in which the London and North-Western Amalgamation Act passed. The authorisation of the Great Northern Railway meant that in a few years the London and North-Western would have to face enormously increased competition, and that Euston Square would cease to be the sole London terminus for traffic to the North of England. But, unfortunately, this was by no means all the new competition threatened, for in addition to

LIVERPOOL TO LONDON EXPRESS STOPPING AT CREWE STATION.

this new competitor which was springing up on its eastern side, the London and North-Western had also to face an invasion of its western frontier. In 1835 a line had been authorised, under the title of the Great Western Railway, to construct a railway between London and Bristol. In its early stages, as we have seen in the chapter on the London and Birmingham Railway, it was at one time suggested that the Great Western should share Euston Square station with the London and Birmingham. Fortunately for both railways this idea was abandoned,

and the Great Western afterwards located its terminus farther west, at Paddington. Unlike the majority of British lines, the Great Western adopted a gauge of its own, and laid down its lines with a gauge of 7 feet. We will not attempt to discuss the relative virtues of the 7 feet and the 4 ft. 8½ in. gauges; both gauges had their devoted adherents, and great was the controversy waged between them. It is generally admitted now that the broad gauge was perhaps the more efficient, though, it must be confessed, at a greatly increased cost. The broad gauge system worked all right so long as it remained in its own territory, but when the lines of the broad gauge and the narrow gauge advanced into the same districts, and an interchange of traffic became desirable for both, then the trouble began. The Great Western, as we have already said, was originally projected as a trunk line between London and Bristol, to serve the West of England, and soon after its birth it embarked on a career of expansion, and, by means of allied lines and satellites, the broad gauge was carried through Somersetshire and Devonshire to Cornwall, and also into the Gloucestershire and South Wales districts. The Great Western, however, was not content to remain only in these districts, and began to cast envious glances towards Birmingham and the Midlands, a district which was the legitimate territory of the London and Birmingham. The result was that in 1845 two broad gauge lines, the Oxford and Rugby Junction Railway and the Oxford, Worcester, and Wolverhampton Railway, both under the auspices of the Great Western, came before Parliament. The London and Birmingham naturally opposed them, and brought forward a scheme of its own, the Worcester, Dudley, and Wolverhampton, planned to fill up much the same country as the Oxford-

Wolverhampton line. Then followed a veritable battle of the gauges. The different schemes were before a Committee of the House of Commons for five weeks, and eventually both the broad gauge lines were passed and the narrow gauge thrown out. In 1846 the broad gauge scored another success by the Oxford and Rugby obtaining Parliamentary powers to extend its line from Fenny Compton to Birmingham, and it was enacted that the Great Western Railway might buy the line if three-fifths of the shareholders of the Oxford and Rugby were in favour of it. With the Great Western extending its lines towards the West Midlands and the North, and thus meeting the narrow gauge system, the gauge question became acute; indeed, in 1845 a committee was appointed to enquire into the matter, which body reported in favour of the adoption of the narrow as standard gauge, owing to its existing preponderance, and the result was that an Act was passed compelling all railways in Great Britain, except the Great Western, to adopt the standard gauge of 4 ft. 8½ in. It is on record that when the Commissioners went to witness the transshipping of the traffic between the broad and narrow gauges at Gloucester, the adherents of the narrow gauge caused a train to be loaded and unloaded several times over, in order to create an atmosphere of haste and bustle. It was calculated at the time that the cost of transshipment from one gauge to the other was equal to the cost of carriage of an additional twenty miles, so it will be readily seen what an enormous disadvantage the break of gauge was. The *Illustrated London News* gives us a most vivid account of the gauge question. In dealing with the question in June, 1846, it says: "At Gloucester two different railways

unite, one running southwards from Birmingham, the other northwards from Bristol. The first has a width of 4 ft. 8½ in. between its rails, the last 7 feet. Gentle reader, you have now a theory of what 'break of gauge' is. If you chance to travel yourself between Birmingham or Cheltenham and Bristol, you will sensibly feel it. The gauge being thus broken, your journey is brought to a dead halt. With all your baggage and rattle-traps, whatever they be in number and size, you are obliged to shift from one carriage to another. You will hear the railway policeman bawling into the deaf passenger's ear that he must dismount; you will see the anxious mamma hastening her family in its transit from carriage to carriage, dreading the penalty of being too late; your dog will chance to have his foot crushed between wheelbarrows and porters' baskets, howling more terrifically than the engine itself; the foreigner 'damns' in broken English at the stolid porter who is carrying off his luggage; the best glass decanters to be presented to your host fall and are cracked to atoms; your wife's medicine chest is broken, and rhubarb, grey-powder, and castor oil unnaturally mixed before their times; the orphans going to school at Cheltenham lose their way in the crowd, and the old maid and her parrot are screeching at honest John for his passive inactivity amidst the turmoil. If your carriage horses accompany you, they, too, must be shifted by dint of whip and cajolery, perchance 'High-flyer,' over-restive and impatient at the prospect of another railway trip, protests so vehemently against a second caging, that he must needs be left behind; you resolve that no consideration will ever tempt you to bring your horses again by railway where there is 'break of gauge.' The removal of goods, owing to the break of gauge, is even more irksome than that of passengers. Where it does not absolutely prohibit

the traffic, the transhipment involves loss, pilferage, detention, besides a money tax of from 1s. 6d. to 2s. 6d. per ton, as we learn from the statements of Messrs. Pickford and Horne, the greatest carriers in the world. An old carrier thus graphically speaks of the contents of a goods train, and the shifting of them: 'It is found at Gloucester that to tranship the contents of one wagon full of miscellaneous merchandise to another, from one gauge to the other, takes about an hour, with all the force of porters you can put to work upon it. An ordinary train of wagons, laden with promiscuous goods, may be composed of the following descriptions, namely, loose commodities, such as bricks, slates, lime or limestone, and chalk, flags, clay, manure, salt, coal and coke, timber and deals, dye woods, iron, iron-ore, lead and metals, cast-iron pots, grates and ovens, grindstones, brimstones, bones and hoofs, bark, hides and sealskins, oilcakes, potatoes, onions and other vegetables, cheese, chairs and furniture, hardware, earthenware, dry salteries, groceries, provisions, cotton, wool, oils, wines, spirits, and other liquids, manufactured goods, fish and eggs, ripe fruit, etc. Now let us contemplate the loss by damage done to the goods on this one train alone, by reason of the break of gauge causing the removal of every article. In the hurry the bricks are miscounted, the slates chipped at the edges, the cheeses cracked, the ripe fruit and vegetables crushed and spoiled; the chairs, furniture, and oilcakes, cast-iron pots, grates and ovens, all more or less broken, the coals turned into slack, the salt short of weight, sundry bottles of wine deficient, and the fish too late for market, whereas, if there had not been any interruption of gauge, the whole train would, in all probability, have been at its destination long before the transfer of the last article, and without any damage or delay.' Such are the results of interrupting the uniformity of the

railway gauge. At present there is only one break, at Gloucester ; but as the newly sanctioned railways would at once increase one to ten, and the projected increase the ten to thirty, Parliament stepped in and, at its advice, the Crown appointed a Commission, which, as we informed our readers weeks ago, reported in favour of the necessity for having an uniform gauge. There being already about 1,900 miles of 4 ft. 8½ in. gauge, and only 270 miles of 7 feet gauge, and as the broader gauge can be easily reduced, whilst the smaller cannot be enlarged, and as the respective merits were, if not balanced, rather in favour of the narrow gauge for general purposes, the recommendation of the Commission was that the 4 ft. 8½ in. gauge should henceforth be declared the national gauge, and all railways made upon it. It should not, however, be withheld that the broad gauge has been found to ensure certain advantages over the narrow ; these are the increased power and speed of the engines, and the stability and convenience of the carriages, all which are strikingly evident on the Great Western Railway."

As we have previously seen, the Oxford and Rugby Railway was empowered in 1846 to carry the broad gauge into Birmingham, and it was enacted that if three-fifths of its shareholders were in favour, it could leave its undertaking to the Great Western Railway, which it forthwith proceeded to do. But the London and North-Western were loath to let the broad gauge into Birmingham without a further struggle ; it was fighting for big odds. The traffic of Birmingham, although itself a by no means inconsiderable item, was not the only point involved. It involved the far greater question of the traffic to the whole of the Midlands and the North, for it was obvious that once the Great Western got a foothold in Birmingham it would not be content to remain there, but would make every effort possible to extend the broad gauge into the rich districts beyond,

and if such were to come to pass, it could not but adversely affect the fortunes of the London and North-Western, and so the latter determined if possible at this eleventh hour to prevent the entrance of the broad gauge into Birmingham. The way it went about it was this. It commenced to buy up on the market as many shares of the Oxford and Birmingham Company as it could, and so successful was this, that by 1847 it had obtained possession of about forty thousand shares out of a total of fifty thousand. The next move was to call a special meeting, at which it was resolved to increase the Board of Directors from twelve to eighteen, the six additional directors being, of course, nominees of the London and North-Western. Having thus obtained virtual control of the line, which had previously agreed to lease itself to the Great Western, the London and North-Western next proceeded to get a resolution passed terminating all connection with the Great Western and cancelling the projected lease. This state of affairs, though naturally extremely satisfactory to the North-Western, was very much the reverse to the Great Western, as it proved effectually to block the way for its advance to Birmingham, access to which it was determined to obtain. The Great Western, accordingly, commenced an action against the Oxford and Birmingham for breach of contract in failing to carry out the original lease; in addition to this the Great Western appealed to Parliament, with the result that a Parliamentary Committee was appointed to enquire into all the facts of the case. The result of it all was a victory for the broad gauge, for in 1848 the Great Western was successful in obtaining judgment in its favour, which pronounced the action of the North-Western and the election of its nominees to be 'ultra vires,' and confirmed the original lease of the undertaking to the Great Western.

Reviewing this matter from a quite impartial standpoint, most people will agree that the North-Western deserved to win and the Great Western to lose. The action of the North-Western in obtaining control of the undertaking and rescinding the lease to its rivals was as pretty a move as is to be found in the history of British Railways, a history, be it added, which bristles with plots and counterplots, and stories of diplomacy and intrigue. The part played by the Great Western

VENTILATED AND STEAM-HEATED BANANA VAN.

was, on the other hand, a tale of bungling all through; it seems extraordinary that it allowed a company to be formed to occupy the country between its own lines and the great city of Birmingham, which although nominally under its auspices, yet over which it possessed no definite control, and afterwards to allow of the possibility of such a line, vital to its interests, becoming hostile. Yet such was the case, and the Great Western in

consequence came very near to losing the line. We have told a tale in which the broad gauge worsted the narrow gauge, so now we will tell one in which the position was reversed and the narrow gauge got the better of their rivals. We have already seen, in the account of the gauge question in the *Illustrated London News*, that Gloucester was the chief centre where the break of gauge took place. The position was briefly this: At Gloucester two lines met, the Birmingham and Gloucester, which was constructed on the narrow gauge, and the Bristol and Gloucester, which was a broad gauge line. All the traffic between Birmingham and the North and Bristol and the West had to be transhipped at Gloucester, and the system proved so unsatisfactory that the question resolved itself into this, either the broad gauge must go to Birmingham, or else the narrow gauge must enter Bristol. As the Great Western was more or less in possession of the Bristol and Gloucester, and working its traffic, it seemed as if the broad gauge would go north to Birmingham, but, fortunately, for the narrow gauge, the Midland Railway came forward and offered a guaranteed dividend of 6 per cent. to the two lines, and thus, by offering better terms than the Great Western, secured the lines and carried the narrow gauge system into Bristol. The London and North-Western, recognizing what a great service the Midland had done to the cause of the narrow gauge, generously came to the aid of the Midland and offered to share with it any loss which the payment of the 6 per cent. dividend might entail.

The result of the battle of the gauges was a draw; the broad gauge was extended northwards to Birmingham and the Midlands, and the narrow gauge was carried into the West Country, right into Bristol itself, the heart of the broad gauge territory. While this great battle of the gauges

was being waged, the London and North-Western was developing in other directions. After the amalgamation of the different lines in 1846, which gave birth to the system, one of the first acts of the united company was to set about bettering the station accommodation at Birmingham; as has been previously recorded, the London and Birmingham and Grand Junction occupied different stations in Birmingham, and although these stations were contiguous, the connection between the two lines was extremely awkward, and did not conduce to the development of through traffic: accordingly, one of the first acts of the amalgamated concern was to set about building a large new central station in Birmingham, one that would be worthy of the Company and worthy of the great Midland metropolis.

As a reward for the great part it had played in checking the advance of the broad gauge, the North-Western afterwards admitted the Midland Railway into its new station at a merely nominal rent. During the same year the London and North-Western entered into a very intimate alliance with the Birmingham Canal, which virtually amounted to a lease of the canal undertakings, for the Act provided that as often as in any year the nett amount of the tolls and other income arising from the canal and other property of the Birmingham Canal Company should be insufficient to produce a dividend of £4 per share, the Railway Company should pay the Canal Company such sum as, with the sum (if any) which should otherwise be applicable, should be sufficient to make up the full dividend of £4 per share, upon each share of the Canal Company. The canal was one of the most important inland navigations in the country, communicating, as it did, with Birmingham, Wolverhampton, Dudley, Walsall and all the numerous manufacturing towns

of the 'Black Country,' and it promised to be a valuable 'feeder' to the Company's railways.

In the year in which the London and North-Western was formed by amalgamation, another company secured its Act of Incorporation, a company which has always been very closely associated with the North-Western. We have seen in the chapter on the London and Birmingham how that Company leased the West London and thereby secured access to many of the important districts around the West of London, and having thus secured access to the West of London, the North-Western was naturally anxious to communicate with the important districts on the eastern side of the Metropolis, where were situated the great London Docks, at which an enormous traffic was annually carried on. With this object in view, a railway under North-Western auspices, bearing the title of East and West India Docks and Birmingham Junction Railway came before Parliament and was successful in obtaining its Act of Inauguration during 1846. This somewhat cumbrously-named railway was planned to start at the goods station of the London and North-Western at Camden and to run *via* Northern London to the docks at Blackwall, and from the first it was virtually a dependency of the London and North-Western. During 1846 Queen Victoria patronised the London and North-Western, and the following occurrence which took place during her journey is related by F. Trevithick, who was the locomotive superintendent at Crewe of the northern division. "About the year 1846," says he, "on a rainy, blowing, autumnal Saturday night, the writer was summoned from nursing an influenza cold to the railway station. Her Majesty, Prince Albert, and the rest of the Royal Family had unexpectedly arrived and desired to be in London by ten the following morning. Continued rain had

caused the line to be unsafe in places except at comparatively low speeds. Saturday night is proverbially a bad time for finding people wanted in a hurry. However, at six the next morning, in dim light and blinding rain, the Royal train was in readiness, and Her Majesty punctual to the minute, when after a little animated delay for the lady-in-waiting, a start was made, and the required speed of 40 miles an hour steadily run, until a providential disobedience of orders by the pilot engine man caused the steam to be instantly shut off, the breaks applied, and the speed reduced to one-half. Fog signals were exploded in close proximity to the danger, red flags were hurriedly unfurled, and in a moment the engine rolled as a ship in a storm through an alarmed group of a hundred navvies, who, thinking it a quiet day, had raised the rails and sleepers a foot above their bed of soft clay, that a thick layer of ballast might be shovelled under them. For a quarter of a mile did the precious freight pass safely over this bridge of rails supported on brickbats, the only injury being a bent driving axle and broken bearing-brasses, with which the engine kept time to the next relieving station, and then broke down."

During the year 1846 a very important opening took place. This was the Lancaster and Carlisle Railway, which completed the final link in the railway communication between London and Carlisle, by way of Rugby, Birmingham, Warrington, Preston and Lancaster. At Carlisle it connected with the authorised Caledonian Railway, then under construction, the completion of which would continue the West Coast rail connection with Edinburgh and Glasgow, the two largest cities in Scotland. From the beginning of the 'forties' a route to Scotland had been in operation, *via* Birmingham and Preston, to the port of Fleetwood, on the Lancashire coast, whence

to Glasgow the journey was continued by steamer, the whole taking about 27 hours. Although at this time this was considered very good travelling, it was foreseen that sooner or later it would be superseded by a rail route. In Bradshaw's Guide, in 1847, we find that the route to Edinburgh and Glasgow was as follows: "Route from Glasgow, *via* Edinburgh to London, proceeds from the Queen Street station to Edinburgh, thence from the North Bridge to Berwick, where passengers are conveyed to the junction of the Berwick and Newcastle line at Tweedmouth; thence proceed to Newcastle, where passengers are conveyed to the station of the York and Newcastle Railway at Gateshead. Leaving there, proceed on to York, Darlington, Normanton, Derby, Rugby to London, arriving at Euston Square Station, where omnibuses and cabs to all parts of the City may be had. A change of carriage may be necessary at Edinburgh, Berwick, Newcastle, York, Derby or Rugby, so that passengers should enquire when at those stations. From London, the same route and contingencies." But even this was not an all-rail route, for there were breaks at Newcastle and Berwick, necessitated by the incompleteness of the great bridges over the Tyne and the Tweed; nevertheless, it was a great advance on the Fleetwood route, for the whole journey between London and Edinburgh was performed in about 14 hours. But it was apparent to all that this somewhat complicated composite route was only a temporary expedient, for it was plain that when the Caledonian line was opened from Carlisle to Edinburgh and Glasgow the London and North-Western would send its Scottish traffic *via* Preston, Lancaster and Carlisle, as it would be distinctly to its advantage to send its traffic by the route on which it owned the greatest mileage, while, similarly, it was obvious that when the Great Northern Railway was opened from

London to York, the East Coast traffic would be immediately diverted from the circuitous Euston-Rugby-Derby-Nor-manton-York route, and would find a permanent home in the London terminus of the Great Northern. As we have just said, the time occupied on the journey from London to Edinburgh was about 14 hours, and it may be of interest to examine here the train services to a few of the chief towns in "'47." Glasgow was reached *via* Edinburgh, and the journey was an hour or two longer than that to

EXTERIOR OF LATEST TYPE OF CORRIDOR SLEEPING SALOON, 65 FEET 6 INCHES IN LENGTH, CARRIED ON TWO 6-WHEEL BOGIES.

Edinburgh. The quickest service to Birmingham was provided by the 5 p.m. train from Euston Square, which arrived at Birmingham at 8 p.m., thus taking 3 hours for the journey. In the opposite direction the quickest train took 3 hours and 10 minutes; while between London and Liverpool the quickest train took a little over 6 hours. All these "express" trains were for the conveyance of first class passengers only, the third class passenger and the Parliamentary penny-a-miler having to be content with greatly inferior services, for such was the practice on all lines at this time; indeed, for years afterwards the third class passenger was only tolerated as a necessary evil which had to be endured—endured only by Parliamentary compulsion—and it apparently never occurred to anyone that third class traffic could be developed so as to become one of the best paying branches of a railway's business.

In pursuance of its policy of extension and amalgamation—a policy, be it said, as much defensive as offensive—in 1847 the London and North-Western entered into a lease of the undertakings of the Shropshire Union Railways and Canals. The Shropshire Union was an amalgamation of several railways and canals, and the original intention was to convert some of the canals into railways, but for various reasons this was never carried out; the projected lines proposed to fill up the districts between Wolverhampton and Chester, Newtown and Crewe, and Stafford and Shrewsbury, but the latter was the only one which was completed. The importance of the undertaking was greatly enhanced by its possession of some two hundred miles of canals, the chief of which were the Chester Canal, the Birmingham and Liverpool Junction Canal, the Ellesmere and Chester Canal, the Montgomeryshire Canal and the Shrewsbury Canal; and these canals served a great part of the

counties of Shropshire, Cheshire, and Staffordshire, and a large district over the Welsh border. The management of the London and North-Western recognised the importance of the undertaking as a feeder to its own lines, and subscribed over £100,000 to it, and, as has previously been said, leased it. By the terms of the lease the London and North-Western guaranteed to the Shropshire Union shareholders in perpetuity half the London and North-Western dividend, with the right to all surplus profits up to 6 per cent., and half the surplus profits over 6 per cent., the surplus profits being arrived at by an average of six and a-half years. Curiously enough, in the same year the London and North-Western leased another railway, the Birmingham, Wolverhampton and Stour Valley, which was also somewhat intimately bound up with canal interests, for the Birmingham Canal Navigations, which the London and North-Western had virtually leased in 1846, had subscribed nearly £200,000 towards the line. The Birmingham, Wolverhampton and Stour Valley was an important piece of line, running through a busy part of the Black country, and connecting the great towns of Birmingham and Wolverhampton, and it was a valuable addition to the North-Western system; by the terms of the lease the London and North-Western guaranteed a dividend, at the rate of two-thirds of the North-Western dividend, on the fixed capital of £760,350. But these were by no means the only additions made to its system by the London and North-Western during 1847, for it was during this year that the North-Western extended its system into the heart of the West Riding of Yorkshire, and secured access to several of the chief towns of the district. This most desirable consummation was effected by the absorption of two small railways, the Huddersfield

and Manchester, and the Leeds, Dewsbury and Manchester. The former line was also a canal owner, for it owned the Huddersfield Canal of some twenty miles, connecting that town with Ashton; and the two lines together gave the London and North-Western a through route of its own to Leeds, independently of the former route *via* the Midland Railway. And so the London and North-Western obtained access on its own rails to another important industrial district. But even this does not exhaust the list of the North-Western new activities during 1847. Two lines had been authorised in 1846, the Oxford and Bletchley, and the Buckingham and Brackley, and in 1847 these two lines, under the auspices of the London and North-Western, amalgamated under the title of the Buckinghamshire Railway, and at the same time secured powers to extend the line from Brackley to Banbury, while the £450,000 new capital authorised for the extension was provided by the London and North-Western. Thus the London and North-Western succeeded in filling up a large part of the country situated between its own main line and the lines of its rival, the Great Western, and at the same time obtained access to the City of Oxford.

During 1847 a very important opening took place. This was the opening of the Trent Valley Line, which shortened the route to the North, and the inception of which has been dealt with previously. The ceremonial opening took place on the 26th of June, and the ceremony was accompanied by great local rejoicings; a great banquet was held at Tamworth, which was attended by a most distinguished gathering, including Sir Robert Peel, M.P., the Prime Minister, and some twelve Members of Parliament; Representatives from eight Corporations; George Stephenson, who had originally laid out the line; George Hudson, "the

Railway King," Chairman of the Midland Railway, the York and North Midland, and the York, Newcastle and Berwick, and connected with numerous other undertakings; Mr. G. Carr Glyn, Chairman of the London and North-Western, and many other noted persons. At the banquet speeches were indulged in, and many were the flattering references made to railways in general and to this one in particular.

The line was not opened for public traffic until some time after the official ceremony; this was occasioned by one of the cast-iron bridges being found to be defective, and as there were several more of the same design, it was found necessary to defer the opening of the line until they had been thoroughly tested and put in order. On the 1st of December the Trent Valley line was opened for public traffic throughout from Rugby to Stafford, and the distance between London and Manchester, Liverpool and the North became greatly shortened, the time occupied on the journey being reduced by about one hour. By this time the first section of the Caledonian Railway had been opened from Carlisle to Beattock, and the line to Glasgow and Edinburgh was approaching completion, and so an all-rail route from London to Edinburgh and Glasgow was fast becoming an accomplished fact. About this time we read in the *London News*: "Arrangements are being made between the London and North-Western Railway, the Caledonian and the Lancaster and Carlisle Railways to start an express train on the opening of the Caledonian line throughout. The train is to start from London and Glasgow at 9 a.m., and is to reach each terminus at 10 p.m." On the 15th of February, 1848, the Caledonian was opened from Beattock to both Edinburgh and Glasgow, and for the first time England and Scotland became linked together by an all-rail service, a continuous railway existing

between London and Edinburgh and Glasgow, and in July of the same year a new service was put on, leaving Euston Square at 9 in the morning and arriving at Edinburgh at 9 and Glasgow at 9.10 in the evening, thus taking twelve hours to the former place and twelve hours and ten minutes to the latter. Such was the beginning of the West Coast Joint Service. In the autumn of 1848, Queen Victoria returned from Scotland by rail from Montrose to London, Montrose being the nearest point to Aberdeen to which the railway was completed, the section of the Aberdeen Railway between Montrose and Aberdeen being still under construction. The Queen had originally intended to make the journey by sea from Aberdeen, but the coast was enveloped in such a dense fog that at the last moment Her Majesty changed her plans and decided to travel by railway. Curiously enough, on her return from Scotland in the autumn of the previous year (1847) the Queen had also unexpectedly made use of the railway; then the Royal yacht, on account of the boisterous weather, had put into Fleetwood, whence to London the journey had been completed by rail. But the Fleetwood journey was a very simple affair when compared to the Montrose journey; between Montrose and London there were the lines of six different companies, whilst there were also sections of single lines, and the running of this special was really a very creditable performance when we consider that it was arranged at Montrose at the last minute and without telegraphic assistance. The *Railway Chronicle* of October 8th, 1848, evidently considered it a wonderful feat, and was loud in its praise of this performance. "Between London and Aberdeen," says the *Chronicle*, "there are no fewer than six railways allied with the London and North-Western in policy and associated with it in management. These lines have the advantage of

being under the direction of Messrs. Locke and Errington, as engineers, throughout for 400 miles north of Birmingham, and of Mr. Robert Stephenson for the remainder of the distance to London. These lines are as follows :—

	MILES.
Aberdeen Railway	18
Scottish Midland	33
Scottish Central	45
Caledonian	105
Lancaster and Carlisle ...	90
London and North-Western	209
<hr/>	
Total of the Queen's journey	<u>500 miles</u>

“When it is known that over this distance Her Majesty was conveyed without any previous notice, at the rate of thirty-five miles an hour, including stoppages, at a rate amounting to, but not exceeding at any time, fifty miles an hour, over a country rising twice to an elevation of 1,000 feet above the level of the sea, and descending at intermediate stations nearly to the level of the sea, and so conveyed without the slightest alarm or cause for danger, we may be permitted to say that the railways of England, under their present system of management, have reached an amount of perfection, regularity, and security unsurpassable and almost un hoped for.”

On the 12th of August, 1848, George Stephenson died at his residence, Tapton House, near Chesterfield, where he was living in retirement. George Stephenson was undoubtedly the greatest of the early railway pioneers, and our railway systems in general, and the London and North-Western in particular, owe more to George Stephenson than to any other man. He was interested in important railway projects all over the country and also abroad,

and as we have previously seen, he laid out a large part of the London and North-Western system, being closely connected with the Liverpool and Manchester, Grand Junction, London and Birmingham, and other lines. He just lived long enough to see these lines welded into the great concern with its headquarters at Euston Square. Apart from these lines George Stephenson laid out large portions of what are now the Midland and North-Eastern Railways. The story of his romantic rise and career has oft been told, from a very humble position he rose to be the greatest

WEST COAST EXPRESS LEAVING CARLISLE.

authority on railway matters in the country, and it is universally acknowledged that it was he who demonstrated the practicability of railways, and it was he who perfected the locomotive engine; two achievements which have probably done more for modern civilisation than any other two. A statue of George Stephenson, which had been ordered by the Liverpool and Manchester and Grand Junction Railways, was on its way to England at the time of his death, and it was appropriately placed in St. George's Hall, Liverpool, a pioneer

city of railway enterprise, and a city linked with many of the activities of the late engineer. The Society of Mechanical Engineers, of which he had been president, opened a subscription list for the purpose of providing a memorial to him, and it is interesting to note that the list included over three thousand contributions of an average of two shillings each from working men. This memorial took the form of a large full length statue by Bailey, which was afterwards happily placed in the great hall at Euston, where the millions of hurrying passengers who throng this immense station can see the likeness of its great engineer who virtually planned the London and North-Western Railway. Well might he have shared Wren's epitaph at St. Paul's, *Si monumentum quaeris, circumspice*.

The year 1848 was not a very epoch making one for the London and North-Western as far as amalgamations were concerned. The most important event was the opening of the Caledonian Railway to Edinburgh and Glasgow, to which we have previously referred. During this year the branch from Leighton to Dunstable was opened, the powers for which had originally been obtained by an independent company, the Dunstable and London and Birmingham Railway. For the year a dividend of 7 per cent. was paid, as compared with $8\frac{1}{2}$ per cent. for 1847 and 10 per cent. for 1846. Verily the capital expenditure on unproductive works, which nevertheless were forced on the company, and to which Mr. Glyn had drawn attention at the first general meeting, was beginning to have its effect on the dividend.

In 1849 the London and North-Western, jointly with the Lancashire and Yorkshire, entered into a lease of the Preston and Wyre Railway. The latter had been opened in 1840, and ran from Preston to the new port of Fleetwood, where

connection was made with the steamers of the North Lancashire Steam Navigation Company to Belfast, while a branch had also subsequently been opened in 1846 from Poulton to the rising seaside resort of Blackpool on the Lancashire coast. But this was not the only joint line which must be mentioned in the history of the year 1849, for during that year a very important joint line, in which the North-Western was interested, was opened for traffic; this was the Manchester South Junction and Altrincham Railway, a joint affair of the North-Western and the Manchester, Sheffield and Lincolnshire. This line had two chief objects, as its title shows, to provide a junction line in South Manchester, and to make a railway to the suburban town of Altrincham; and its possession was of vital importance to the North-Western, since the South Junction Line provided communication between its two sections in Manchester by a line commencing at London Road, on the Manchester and Crewe section, and running to Ordsall Lane on the Liverpool and Manchester section. The South Junction section entailed heavy engineering works, and was carried for about two miles through Manchester on a great viaduct, in the construction of which over fifty million bricks, three thousand tons of iron, and three hundred thousand cubic feet of stone were used; the Altrincham section, on the other hand, was a very easy one to construct, as except for a very short tunnel there were no engineering works of any magnitude. The Manchester, South Junction and Altrincham, like other joint lines, was managed by a committee of directors from the Manchester, Sheffield and Lincolnshire and North-Western Companies, one of whom was appointed Chairman in turn for a month. Matters, however, did not always progress very amicably between the two parent companies, and it is on record that resolutions, which were

carried by the casting vote of one Company's chairman, were frequently set aside the next month when the other Company's representative was in the chair. This Gilbertian state of affairs continued for years, but eventually it was put right by the appointment of a standing arbitrator, who was empowered to deal with all matters which necessitated a casting vote, the casting vote of the chairman being, of course, abolished.

Perhaps the most important opening during 1849 (from a North-Western point of view) was that of the Shropshire Union Railways from Stafford to Shrewsbury, which opened up a new route to Shrewsbury and the adjacent districts.

The dividend for 1849 showed a further reduction, the dividend being at the rate of $6\frac{1}{4}$ per cent., as compared with 7 per cent. for 1848, and 10 per cent. for 1846. But the dividend was destined to sink lower still, for as yet the London and North-Western had not had to face any serious competition, but the era of competition was now fast beginning.

CHAPTER VII.

"Competition" (1850—1855).THE BUCKINGHAMSHIRE RAILWAY—THE NORTH
LONDON RAILWAY—PROPOSED AMALGAMATION
WITH THE MIDLAND—AND OTHER MATTERS.

The year 1850 marks an important epoch in British railway history, for in that year the Great Northern Railway was opened from London, thus providing a second route between the Metropolis and many important places in the Midlands and North of England, and thereby commencing the era of keen competition. Up till this date the London and North-Western and its predecessor, the London and Birmingham, had been practically free from competition (if we except the Parliamentary fights with the Great Western), and Euston Square had been the sole London terminus for traffic to the Midlands, the North of England, and Scotland. That this state of affairs would not last for ever must have been obvious even to the most ardent monopolist, and if indeed there was anyone who believed it would continue, his hopes were shattered by the authorisation of the Great Northern Railway in 1846. Four years later the first Great Northern train steamed out of its temporary London terminus at Maiden Lane, and for the first time the public had the choice of rival routes between London and many towns in the North. The opening of the Great Northern was a great blow to the London and North-Western, but the latter, determined to make every effort to hold the bulk of the traffic to the North. The London and North-Western possessed the advantage of

being the established line (or of having the "goodwill," as it might be termed), and it had several years in which to prepare for the opening of the rival line. Captain Huish, the manager of the London and North-Western, who had previously been manager of the Grand Junction, and who is universally acknowledged to have been one of the most able of railway administrators and diplomats who ever lived, started early to lay his plans and to make arrangements, which would meet the forthcoming competition of its rival, and which would retain the greater part of the traffic to the North for the North-Western. His plan of campaign was to form an alliance or confederacy, a confederacy whose chief object was practically to boycott the new-comer. This "Euston Square Confederacy," as it was generally called, has been much discussed and maligned at different times, but, although it must be confessed it was somewhat hard on the Great Northern, it was a distinctly smart piece of diplomacy on the part of Captain Huish, whose sole business was to look after the interests of his own shareholders. And, indeed, if the Euston Square Confederacy inflicted a hardship on the Great Northern, it was none greater than that which the opening of the Great Northern inflicted on Euston Square. The Great Northern practically set the ball of railway competition rolling, and those who play with fire must expect to burn their fingers; and the Euston Square Confederacy was the reply of the London and North-Western to the Great Northern's Act of Incorporation. Captain Huish, who, as we have previously said, was one of the greatest railway diplomats, induced most of the great provincial railways to enter the confederacy, the members of which agreed to work for one another's welfare, and to have nothing to do with the Great Northern. Chief of these companies were the Midland, the

Lancashire and Yorkshire, and the Manchester, Sheffield and Lincolnshire, though it seems difficult to see what the Manchester, Sheffield and Lincolnshire (with an extremely clever manager like James Allport, afterwards manager of the Midland Railway) could see in an alliance with the London and North-Western in preference to an alliance with the Great Northern, seeing that the lines of the Manchester, Sheffield and Lincolnshire and Great Northern would have provided a route between London and Manchester and Lancashire almost as short as that of the London and North-Western. Anyhow, whatever the reason was, it says a great deal for the diplomacy of Captain Huish, although Mr. Allport, who usually proved himself such an enlightened negotiator, does not show up in quite such a good light. Thus was the Euston Square Confederacy signed for a period of seven years. A sort of peace was maintained between the Confederacy and the Great Northern by the fact that they agreed to charge equal rates and fares between competitive points; but even though no rate-cutting was indulged in by either side, the working of duplicate routes between London and the same towns was soon pronounced to be wasteful and ruinous, and it was not very long before proposals were made to divide a lot of the competitive traffic between London and the North. Towards the end of the year (1850) a proposal was drawn up by which all the receipts between London and places north of York were to be placed in a common "pool" and divided between the different companies in certain proportions, thus removing from all the participators the temptation of securing traffic by reducing fares or by any similar method; and at the beginning of 1851 this agreement was signed by the different companies for a period of five years. The agreement was called the

THE RUNCORN BRIDGE, CARRYING THE DIRECT LIVERPOOL LINE OF THE LONDON AND NORTH-WESTERN
RAILWAY OVER THE MERSEY.

"Octuple" agreement, for by it it was arranged to divide the traffic between London and places north of York between *eight* railways the eight lines being composed of the London and North-Western, Lancaster and Carlisle, the Caledonian, the Great Northern, the York, Newcastle, and Berwick, the York and North Midland, the North British, and the Midland. The question of competitive traffic to places north of York having thus been satisfactorily settled, the question of competitive traffic to places south of York next received attention, and it was agreed to submit the question of pooling the traffic of six towns to the arbitration of the Right Hon. W. E. Gladstone. The six towns were York, Leeds, Wakefield, Sheffield, Doncaster, and Lincoln. Unfortunately, however, there were other matters in dispute, and the Great Northern announced its intention of charging what fares it pleased to Bradford and other towns not covered by the 'pool.' This would naturally have had the effect of practically putting an end to all usefulness of the pool, and under these circumstances Mr. Gladstone refused to go on with the arbitration until both sides could agree on these other points, and the utility of the pool would be assured. The failure of the pooling arrangement was all the more to be regretted, since the year 1851 was to see the opening of the Great Exhibition in London, and it was morally certain that competition for the passenger traffic to the Exhibition would become pretty acute. However, the Great Exhibition was opened on the 1st of May, and for some time all went well; the competitors charging the same fares. But in July, when the cheap excursions to the Exhibition had commenced, the spark of rivalry which had been smouldering since the opening of the Great Northern burst into flame, and a rate war between the rivals commenced. It was caused

by an agent making an unauthorised reduction in the excursionist fare. This was immediately taken as a challenge by the other side, and an effective reply was made. The rate war had now begun in earnest. A reduction by one side was immediately met by a further reduction on the other side, and the fare gradually sank lower and lower until it came perilously near to vanishing point, the fare between London and many of the chief towns of the West Riding (where the competition was keenest) sinking to as low as five shillings return, and it is recorded that the Great Northern announced at Leeds that it would issue tickets to London at sixpence less than whatever fare the London and North-Western and Midland Companies might charge. Besides transporting vast crowds of sightseers to the Exhibition, the London and North-Western was also well represented inside the Exhibition building. The London and North-Western locomotive *Cornwall*, designed by Mr. Trevithick and built at Crewe, was on exhibition, and attracted a lot of attention. This engine was afterwards rebuilt, and was undoubtedly one of the most famous locomotives of the century. The *Cornwall* was a "single" engine, with 8 ft. 6 in. driving wheels, and, as originally built, the boiler was below the driving axle. Another locomotive, the *Lady of the Lake*, painted blue, was also on exhibition. Besides the locomotives, the railway carriage and wagon builder's art was also represented. Concerning the building of railway carriages, we read in the *Illustrated London News* of the period that "the latest change has been the introduction of corrugated iron, which is both strong and comparatively light. Mr. McConnell, the Engineer-in-Chief at Wolverton, has sent a composite carriage of this material, lined with wood, which holds sixty second

and sixteen first class passengers, besides a guard's van, which will hold five more if needed—all carried on six wheels. The arrangements for getting round curves with the centre wheels are worth examination. This carriage is said to be 35 per cent. lighter than an ordinary vehicle of the same capacity. If practice proves it to be durable and economical, the advantage will be enormous, for dead weight, viz. unprofitable weight, is an enemy that has been constantly encroaching on railway profits and preventing reduction in railway fares." This corrugated iron coach was apparently not an unqualified success, but nevertheless it was the forerunner of the great steel coaches of to-day. The North-Western conveyed from the Bank Quay Foundry to the Exhibition the great Britannia hydraulic press, which weighed 60 tons, and to convey this from the railway to the Exhibition required the assistance of sixty horses.

The excessive competition for the Exhibition traffic had taught the competitors a lesson, and so the question of pooling traffic to places where the lines were in rivalry was once again brought forward, and about the middle of the year the Right Hon. W. E. Gladstone, who, it will be remembered, had discontinued his arbitration proceedings, took the matter up once again, and made his award, allocating to the different lines their shares of the traffic between London and York, Doncaster, Lincoln, Leeds, Wakefield, and Sheffield. And so by means of the Gladstone award and the Octuple agreement, competition between London and the Midlands, the North of England and Scotland, was practically abolished for a term of years.

Besides the opening of the Great Northern, the year 1850 witnessed the opening of several other railways, although these latter were somewhat overshadowed by the former. Nevertheless, some of

them were very important lines and closely bound up with the London and North-Western. On the 1st of May the first section of the Buckinghamshire Railway, a subsidiary company of the North-Western, was opened from Bletchley to Banbury, and to proceed ahead a little, the remaining section from Claydon into Oxford was opened during the next year, on the 20th May, 1851. The formal opening of the line was made the occasion of a great banquet, where many of the Oxford Dons were present, and it is pleasing to record that the line was apparently received with open arms by the University authorities; for in the early days of railways, corporations and public bodies frequently did all in their power to hinder railway development. The University authorities of Oxford had previously had some very stringent and peculiar clauses inserted in the Great Western's Act, but an even better example of this type of obstruction is afforded by the manner in which the Eton College authorities treated the same railway, for by the Great Western Act it was enacted that it should not be lawful for any company or person to lay down any railway passing within three miles of the College of Eton and connecting with the Great Western, and in addition to this it was enacted that the railway should maintain at its own expense a sufficient number of watchmen for preventing "access to the said railway by the scholars of Eton aforesaid." Therefore it is all the more pleasing to record the fact that the London and North-Western apparently received a warm welcome from the University of Oxford, and many of the dons and members of the University authorities, as has previously been said, sat down to the great banquet in honour of the London and North-Western reaching the city of Oxford. The first train to leave Oxford was an express for London, conveying a large number of persons going up to the Exhibition, and this covered

the seventy-eight miles between the University city and Euston in a hundred and ten minutes, which was an extremely creditable performance for those days. The Buckinghamshire Railway was virtually North-Western, as the latter was a large shareholder in it and had provided the whole of the £450,000 authorised by its Extension Act of 1847, and in 1851, the year of its opening throughout, the Buckinghamshire became definitely welded in the North-Western system, for in that year, the London and North-Western took over the Buckinghamshire on a nine hundred and ninety-nine years' lease at a guaranteed dividend of 4 per cent., with a half-share of all surplus profits. The opening of the first section of the Buckinghamshire Railway was not the only opening affecting the North-Western, which took place in 1850, for in that year the first portions of the North London Railway were opened. The North London was a subsidiary company of the London and North-Western, incorporated in 1846 under the title of the East and West India Docks and Birmingham Junction Railway. Its chief object was to connect the London and North-Western (or London and Birmingham, as it was then) at Chalk Farm with the docks of London. The construction of the line was almost immediately undertaken, but, like most concerns of the period, the North London suffered from the great financial crisis which followed the Railway Mania, and this naturally somewhat impeded the progress of the works, and so it was not until the end of 1850 that the first section was opened for traffic. The first section to be opened was that from Islington to the Blackwall Railway at Bow, this event taking place in September, while a further section, that from Islington to Camden Town, was opened in December. To show the importance of this railway, not only as a goods line but also as a passenger line, it may be mentioned that during

the first month of 1851 a total of 186,775 passengers were conveyed by it. The junction with the London and North-Western was opened in June, 1851, while the line to Poplar was opened on the 1st of January, 1852. The importance of this line to the London and North-Western was very great, as it connected the latter railway not only with the London Docks, but also with the City, *via* Bow and the London and Blackwall

INTERIOR OF INVALID OR FAMILY SALOON, FITTED WITH BEDSTEAD.

Railway, and from the beginning it was a satellite of the North-Western's, the latter being largely interested in it financially and well represented on its board. At first the London and North-Western provided locomotives for working the traffic, the North London providing the carriages, but this arrangement only continued until 1853, when the North London started a locomotive stud of its own.

Another important opening which took place during 1850 was that of the Britannia Bridge over the Menai Straits, on the Chester and Holyhead Railway. By the opening of this bridge, the last link was forged in the chain of continuous rail communication between London and Holyhead, thus completing the short route between London and Dublin and Ireland. An apology is needed for the apparent scant treatment of such an interesting subject, but the matter is fully dealt with under the heading of the Chester and Holyhead Railway, which, if the reader will have the patience to continue perusing this book, will be found dealt with further on.

It is somewhat interesting to note that it was in 1851 that Mr. W. H. Smith, who afterwards became First Lord of the Admiralty, secured his first contract for the supply of literature at London and North-Western stations, and laid the foundation of the enormous business which bears his name. He refused to sell any books that were in the least questionable, and was so careful in his selection of works, that he soon became known as the "North-Western Missionary."

For the year 1850 the dividend showed a further reduction, the distribution being at the rate of $5\frac{1}{4}$ per cent., or one per cent. less than that of the previous year, the next year things improved somewhat and a dividend of $5\frac{3}{4}$ per cent. was paid. These decreased dividends were no doubt largely due to the great amount of capital spent on more or less unprofitable extensions, but they were probably also caused by the increased rivalry and competition amongst the various lines, and already at this early stage of railway history critics of railway management had come forward who denounced competition as suicidal to those engaged in it, and who prescribed amalgamation as the only panacea for all railway ills.

Towards the end of 1851 rumours of an union between the North-Western and the Midland began to fill the air, and great were the savings and benefits which many asserted would result from such a combination; the Midland, it must be remembered, was in these days a purely provincial undertaking, reaching no nearer to London than Rugby, and being practically an extension of the London and North-Western north-eastwards from that town. That there was another side to the question, and that all did not share this magic dream of the benefits of indiscriminate amalgamation, is shown by the following extract from a provincial newspaper (the *Derbyshire Advertiser* of 7th November, 1851):—"Rumour asserts," says the *Advertiser*, "that the London and North-Western Board is divided into two or three parties, one of which is very anxious to buy or lease the Midland, but the others are against it. One of these, with Mr. Glyn at the head, is dead against it. If it be so, Mr. Glyn has certainly taken the wise course. The amalgamation or lease of one of the other of these great lines is, at present at least, preposterous, either as regards the shareholders or the Legislature. It may be for a rig in the markets to catch the simples, but will not pass with men of business." However, 'preposterous' as it may have seemed to some, negotiations for amalgamation took place between the North-Western and the Midland, and indeed came very near to being successful. Each Company brought forward a scheme which they considered equitable, but the trifling difference of $2\frac{1}{2}$ per cent. only separated the two proposals, the London and North-Western suggesting amalgamation at the ratio of £57 10s. Midland stock to £100 North-Western, while the Midland Board asserted that £60 Midland stock to £100 North-Western was absolutely the lowest price to which they could consent. The $2\frac{1}{2}$ per cent. difference

proved a stumbling block which could not be overcome, and so, having reached an impasse, the negotiations between the two companies were broken off.

The Midland was not the only railway with which the London and North-Western was reported to be negotiating for an amalgamation during 1852, for there were rumours of an union between the London and North-Western and the Great Western, but how much truth there was in it it is hard to say. An amalgamation between the Midland and the London and North-Western was a natural and feasible proposal, quite as natural in fact as the amalgamation of the London and Birmingham and the Grand Junction had been, as the Midland was an extension of the London and North-Western ; but an amalgamation between the North-Western and the Great Western was a very different matter, as this was an amalgamation of two lateral competitors, engaged in rivalry at many points, and with practically no interests in common.

Such a proposed amalgamation naturally excited keen criticism and denunciation from the public and the press, and the *London News* in a leading article sums up the point of view of the general public. "It is not," writes the *London News*, "for a sentimental admiration for, or a love of, each other that they combine, but it is for the love of the public dollars; it is not fraternity, but cupidity that inspires them. A partnership between such quondam competitors is nothing more or less than a league to retrieve all those past losses, which they owe to their own folly and recklessness, and to make, *per fas aut nefas*, greater gains for the future. For these reasons, among many others, the public looks with some alarm upon the design which Mr. Glyn and his co-directors have announced, and which the chairman and directors of the Great Western have

entertained with such coy appreciation. We trust, however, that the Legislature, which granted them individually the great powers which they wield, will not sanction any amalgamation without taking the most severe precautions against either extortion, inefficiency, or neglect of the public safety and convenience." The reason for the proposed amalgamation between the great rivals at Paddington and Euston Square is not very far to seek, for it was undoubtedly due to the approaching completion of the Great Western to Birmingham and the forthcoming competition. This dream of peace, however (if indeed it ever seriously existed), was very soon shattered, and the London and North-Western and Great Western soon returned to their normal state of warfare. Birmingham was the centre around which the war between the Great Western and North-Western was waged. We have previously seen that the North-Western did all in its power to prevent the broad gauge from being extended northwards to Birmingham, but without avail; the Great Western having thus been successful in its struggle with the North-Western, and secured Parliamentary powers for a line to Birmingham, the struggle between the two giant companies still went on, a struggle this time for the possession of some of the strategic local lines around Birmingham, and for the occupation of the country north-west of Birmingham. In September, 1852, the first Great Western train left Paddington for Birmingham, but misfortune overtook it, and it was derailed on its journey, and its load of guests did not reach Birmingham, the latter proceeding to Leamington, where a dinner was partaken of in honour of the occasion. Here the aspirations of the Great Western were clearly shown by the toast, "The Broad Gauge to the Mersey." By the opening of the Great Western to Birmingham the North-Western was deprived of its monopoly of

the London-Birmingham traffic, and found itself faced with a serious competitor. The Great Western soon inaugurated a service between London and Birmingham in two hours and three-quarters, and the London and North-Western promptly replied to this by reducing its own time to two hours and three-quarters.

In July, 1852, the Birmingham, Wolverhampton and Stour Valley Railway was opened for public traffic, connecting Birmingham and Wolverhampton with each other, and with Smethwick, Tipton, Oldbury and other places in the Black country. This line, as we have previously seen, was leased to the North-Western at two-thirds of the North-Western dividend. The Stour Valley Line would have been opened previously if it had not been for an unfortunate dispute with the Great Western and Shrewsbury and Birmingham Lines. The latter claimed running powers over the Stour Valley, which the North-Western disputed, and rather than give in it postponed the opening of the line. It is even on record that the Shrewsbury and Birmingham (which had passed under the control of the Great Western) attempted to force one of its trains through to Birmingham, but at the junction it was found that several North-Western engines were blocking the way and a gang of navvies pulling up the rails, while it is asserted that something like a free fight took place, and the Riot Act came very near to being read. Eventually the whole case was referred to arbitration. It was during this year the North-Western began to supply the locomotive power for working the South Staffordshire Railway, an important system in the district from which it obtained its name, running from Dudley to Lichfield, and the alliance between the two companies strengthened the position of the North-Western in this district, and paved the way for a closer union at a later date. From the South

Stafford it is a natural transition to the North Stafford. The question of an amalgamation of the North Staffordshire Railway was much to the fore during 1852. Stretching through the rich industrial pottery district of Staffordshire almost contiguous to the main line of the North-Western,

15-TON FOUR-WHEEL COVERED GOODS WAGON;
TARE 9 TONS 6 CWT. 2 QRS.

Upper view shows wagon closed for travelling. Lower view shows the wide doors open for quick loading or unloading.

the North Staffordshire Railway appeared to be the natural complement to the North-Western, connecting the latter with all the pottery towns; and it was naturally considered that an amalgamation of interests would be advantageous to both companies. The whole question was submitted to the

arbitration of Mr. Robert Stephenson and Mr. J. R. Hope, who thoroughly investigated the whole case for and against amalgamation, and at length decided in favour of an union of the railways. A Bill for amalgamating the North Stafford with the London and North-Western was accordingly lodged in Parliament, but owing to the great opposition it aroused, was unsuccessful. Three times in all was Parliamentary sanction for the fusion sought, but each attempt was unsuccessful. But the fusion of the North Stafford was not the only amalgamation scheme which the North-Western was hatching. We have previously seen that the North-Western had been within $2\frac{1}{2}$ per cent. of amalgamating with the Midland at the beginning of the year, and in August the Secretary of the London and North-Western forwarded a letter to the Midland Secretary informing him that "a special committee has the authority of the board to meet a similar committee of your board, and discuss the question of a closer union and amalgamation of the two undertakings." Accordingly, negotiations were resumed, and this time they were more successful than on the previous occasion, and a Bill for the amalgamation of the two companies was lodged in Parliament, but here an unexpected check was encountered, for Parliament appointed a Select Committee, with Mr. Cardwell, President of the Board of Trade, as chairman, to enquire into the whole question of railway amalgamation, and pending the issue of the Committee's report, all Bills for railway amalgamation were "hung up." In course of time the report appeared, and was against the amalgamation of large companies. The report dealt with railway problems in all their intricacies, and one result of the Committee's deliberations was the introduction of the Railway and Canal Traffic Act, or the "Cardwell" Act, as it is more generally known, which aimed

a blow at railway monopoly by providing for all reasonable facilities at junctions, and such like matters. With the Select Committee's report against the desirability of allowing large railways to amalgamate, there was only one course open to the London and North-Western and Midland, and the Bill for the amalgamation of the two companies was therefore withdrawn. During 1852 Mr. George Carr Glyn, who had been Chairman of the London and North-Western from its incorporation, and for some years before that Chairman of the London and Birmingham, resigned from the chairmanship. Seventeen years afterwards Mr. Glyn was destined to be raised to the peerage as Baron Wolverton, a title which he took from the place where the London and Birmingham had located their works, which, as everyone knows, is now the headquarters of the carriage works of the London and North-Western Railway. Mr. Glyn was succeeded in the chair by Major-General the Hon. George Anson. For the year 1852 the dividend was at the rate of $5\frac{1}{4}$ per cent.

During the year 1853 there was authorised a line under the title of the Hampstead Junction Railway, which proposed to construct a line from Willesden in an easterly direction through the north-western suburbs to a junction with the North London at Camden. The capital of the Company was £250,000, and the London and North-Western subscribed £150,000. So it will be seen that although independent in name, the line was for all practical purposes purely North-Western. The new line promised to provide a new route between Willesden and the North London Railway, and to relieve the main line between Willesden and Camden.

We have previously referred to the Oxford, Worcester and Wolverhampton Railway, generally called the "Old Worse and Worse Railway,"

which, it will be remembered, was a broad gauge line promoted in the interests of the Great Western, and passed by Parliament in preference to a narrow gauge scheme of the London and Birmingham's. The Oxford, Worcester and Wolverhampton was, however, altered to a mixed gauge line, and soon ceased to be a very loyal ally of the Great Western's. The Oxford, Worcester and Wolverhampton decided to be independent of both the broad and the narrow gauge interests, as represented by the Great Western and the London and North-Western, and to construct a line of its own to the Metropolis. Plans were accordingly prepared for a new Mid-Western Railway, which came before Parliament in 1851 and 1852; on both occasions, however, it was unsuccessful. In 1853 the Mid-Western Railway again came before Parliament, while at the same time the London and North-Western brought forward an opposition scheme for a line from Tring to Oxford. Needless to say, both schemes met with the very greatest opposition from the Great Western. Eventually the House of Commons Committee that was considering the Bills passed the Oxford-Tring Line of the London and North-Western and threw out the ambitious Mid-Western scheme. Unfortunately the Oxford and Tring Line did not survive the ordeal of the House of Lords; but as some slight set-off to their loss, however, a Bill for a junction line between the North-Western and the Oxford, Worcester and Wolverhampton at Yarnton, a few miles north of Oxford, succeeded in passing through both Houses of Parliament. This junction, when completed afterwards, enabled the London and North-Western to compete for the traffic of Worcester and of the whole of the Oxford, Worcester and Wolverhampton system, although it must be confessed that the journey was somewhat of the roundabout order. The North-

Western ran fast "Worcester" expresses, Euston to Handborough, a station on the Oxford, Worcester and Wolverhampton a little north of Oxford, *via* Bletchley and Yarnton, and for some time indeed supplied the locomotives for working the Oxford, Worcester and Wolverhampton line, and the relations between the two lines continued to be intimate until the Oxford, Worcester and Wolverhampton, or West Midland as it afterwards became, was absorbed by the Great Western in 1863.

The London and North-Western has always been noted for the beneficial interest it took in its employees, and for the generous manner in which it has treated them. The year 1853 saw the inauguration of the first of the successful societies which are devoted to the interests of the Company's employees. This was the London and North-Western Superannuation Fund Association, which was started in that year. The Superannuation Fund Association was started in the interests of clerks and other salaried officers of the Company. Membership was compulsory for all those eligible, each member paying to the Fund two and a-half per cent. of their salaries, while the Company subscribed a like amount. The object of the Association was to provide a superannuation allowance to its members on their retirement at the age of sixty, or in certain circumstances earlier if the member had subscribed to the Association for ten years, while in the event of death a payment would be made to the member's nominee. From the first the Association was a great success, and proved a great boon to the Company's employees.

The year 1853 is remarkable in the engineering history of the London and North-Western for witnessing a great improvement in the permanent way. Up till this time the ends of the rails had been joined together in special joint chairs, but in 1853 the method of joining the rails together by means of

fish - plates was adopted on the London and North-Western, a method which with slight improvements survives to this day. The fish - plate system was a very great advance on the joint chair system, as the latter was too rigid, while the former gave more elasticity and resiliency to the permanent way and consequently improved the running enormously.

The gross receipts for the year 1853 were £2,628,336, and the expenditure £993,825, and the nett receipts sufficed to pay a dividend on the ordinary shares at the rate of 5 per cent. per annum, a slight reduction of $\frac{1}{4}$ per cent. on the dividend of the previous year.

During the next year the great new

station at Birmingham was opened for public traffic. It will be remembered that at the time when the battle of the gauges was raging the London and North-Western magnanimously arranged to share with the Midland Railway certain financial obligations which the latter had undertaken in regard to the Birmingham and Bristol lines, as some reward for preserving the narrow gauge in this district. This arrangement was afterwards altered, the Midland releasing the North-Western from these financial obligations, and the North-Western in return allowing the Midland the use of New Street Station, Birmingham, at a merely nominal rent. The New Street Station was a most commodious erection, and immediately proved a great boon for the working of the large traffic which had previously been hampered by the inconvenient accommodation. Another very important opening for the London and North-Western during 1854 was that of the Newport, Abergavenny and Hereford Railway, which the North-Western had undertaken to work. The title of the Newport, Abergavenny and Hereford sufficiently explains its situation, and it must be confessed that it seems strange for the North-Western to undertake to work a line in this district, seeing that there was a large gap of 'foreign' territory between its own rails and those of the Newport, Abergavenny and Hereford. The North-Western had reached Shrewsbury, but between Shrewsbury and the commencement of the 'Abergavenny' line were some fifty miles of line belonging to the independent Shrewsbury and Hereford Railway. However, the arrangement clearly shows the ambitions of the North-Western at this period, and arouses an interesting train of thought of what might have happened in this district, a district which is now almost entirely Great Western, but which might at this time have become largely

North-Western. As we have seen previously, the North-Western more than once promoted a line of its own to Worcester, and was at times on very intimate terms with the Oxford, Worcester and Wolverhampton, indeed at one time it actually worked part of the traffic of the 'Old Worse and Worse'; clearly then at one time this West Midland district was considered by Euston Square to be a district to which it should have access. Whatever may have been the reason the North-Western failed to keep its hold on this part of the country, and to-day the West Midlands are honeycombed by the lines of the Great Western, while the Midland also runs through the district.

As we have said, the Newport, Abergavenny and Hereford was at its opening worked by the North-Western, and, indeed, at one time a bill was actually prepared for an amalgamation, but nothing came of it and not very long afterwards the Newport, Abergavenny and Hereford ceased to be worked by the North-Western, shortly afterwards becoming an integral part of the West Midland Railway, which amalgamated with the Great Western in 1863. The North-Western practically abandoned this district, which would have given it a good route to the industrial districts of South Wales. Some years later, however, it secured another route to South Wales, which is fully described in a later chapter. But the West Midland district was not the only district which was receiving attention from the North-Western in 1854, for there were also schemes of extension in a more northerly part. In this year there was authorised a line under the title of the Stockport, Disley and Whaley Bridge Railway, which proposed to construct a line from the North-Western at Stockport through Disley to a junction with the High Peak Railway at Whaley Bridge. The length of the line was a little over ten miles, the

capital being £150,000, to which the North-Western subscribed, also undertaking to work the line when constructed.

The year 1854 witnessed another change of chairmanship, Major-Gen. the Hon. George Anson resigning the chair and being succeeded by the Marquis of Chandos, afterwards Duke of Buckingham. A story is told of the Marquis of Chandos that, whilst a director of the company, he was making a call on one of the chief officers at Euston, but the hall porter failed to recognise him, and mistaking him for one of the many applicants for minor positions on the line, who pestered the chief officers, refused to admit him, and only capitulated when the Marquis produced his card.

There was an increase in receipts during the year, the total receipts being £2,800,582 and the expenditure £1,130,983, the distribution on the ordinary stock being at the rate of 5 per cent. per annum, the same as that for the preceding year.

About 1855 an epoch-making change in the matter of signalling took place on the London and North-Western, for, about this time, the North-Western inaugurated on the southern division a system of signalling known as the two-mile telegraph system. Previous to this it must be confessed that almost everywhere signalling had been in an extremely crude state, and fast travelling in consequence fairly risky, the chief safeguard being a long time interval between trains and a good look-out ahead. The two-mile telegraph system was a great advance on anything seen before, and was really the forerunner of the present-day block system. This system, which was introduced by Mr. Edwin Clarke, consisted of dividing the line up into a number of sections controlled by signal boxes in telegraphic communication with each other, no train being allowed to follow another train into a section until a

reasonable time had expired. It will be observed that this system only just fell short of being an absolute block system, the system in use at the present day, by which the line is divided into a number of sections, into each of which only one train is allowed at the same time. Although the absolute block system did not come for some time, it is obvious from the report on this system made by Mr. Edwin Clarke to the company that he foresaw the advantages of an absolute block system; for in the report he states: "It will be observed that in the following system it has not been thought desirable to forbid two trains entering on the same length of line between the signal stations, it is, however, evident, that if the stations are placed sufficiently near together to avoid delays from stoppages, that by such an arrangement all accidents from collisions will be quite impossible, and in this case the caution signal will be entirely cancelled."

As has previously been said, the two-mile system was a great advance on any previous signalling system, but even then absolute security was not by any means obtained, and trains over-running one another and collisions were not infrequent. And this state of affairs continued until the absolute block system was afterwards adopted, which made travelling as safe as any signalling possibly could do.

For the year 1855 the gross receipts were £2,892,433; the expenditure was £1,116,907; and the dividend was at the rate of 5 per cent. Ten years had now elapsed since the amalgamation, and the dividend had sank from 10 per cent. in 1846 to 5 per cent. in 1855. This striking decrease was undoubtedly due to the large expenditure which had to be undertaken on extensions and improvements and to the increasing effects of competition.

CHAPTER VIII.

1855—1859.

RAILWAY RIVALRY—THE CHESTER AND HOLYHEAD
—THE LANCASTER AND CARLISLE—THE WEST
LONDON AND WEST LONDON EXTENSION—
DEATH OF ROBERT STEPHENSON.

Towards the end of 1855 the chief centre of interest in inter-railway politics was the termination of the two great pooling agreements—the “Gladstone” agreement and the larger Anglo-Scottish agreement—both of which were due to expire at the end of the year. These agreements had undoubtedly saved much needless competition, but they had by no means put an end to it, as the interested lines had striven to carry more traffic than their percentage in order to secure a larger share when the award came up for revision. Still, the companies were anxious to renew the pooling agreements for a further term of years, and negotiations were accordingly started in 1855, before the agreements terminated; but to reach a satisfactory agreement among the conflicting interests was a far from easy task. The Great Northern Company wished to participate in the traffic of the district west of Sheffield, from which district at this time it was shut out, since the Manchester, Sheffield and Lincolnshire, which held the key to this district, was in close alliance with the North-Western, and the latter was naturally loath to see its great rival admitted into the district without a fight. The result was that the negotiations for the renewal of the pool reached a deadlock, the Great Northern on the one side, and the London and North-Western,

with its allies, the Manchester, Sheffield and Lincolnshire and the Midland, on the other, both refusing to make any concessions. An arrangement was patched up at the last minute to continue the old agreement for another month, during which time negotiations for a settlement continued, but it was all of no avail, and the agreement lapsed. In the then existing state of railway politics (although, it is true, the London and North-Western and Great Western had for some time agreed to charge equal rates), a rate war was now inevitable. The London and North-Western accordingly decided to act on the offensive, and towards the end of January published, in conjunction with its allies, the Midland and the Manchester, Sheffield and Lincolnshire, a list of new trains at greatly reduced fares, which it proposed to run between London and many of the important places in the Midlands and the North. Still, no agreement was reached, and on the 1st of February the North-Western began its attack and cut its rates. For some time the Great Northern made no reply, but on the 11th of February it likewise cut its rates. A rate war had now begun in earnest, and the fares gradually sank lower and lower, and the general public was not slow to take advantage of the cheap travel facilities. So keen was the fight for traffic that the first class fare from London to York fell to 5s., while the second class fare from Euston to Peterboro' was reduced to a shilling. Eventually, however, a truce was patched up, and the cheap fares were withdrawn on the 1st of March. By the terms of the truce it was arranged to refer the matter to Mr. Gladstone for a redistribution of the traffic for which the North-Western and Great Northern were actively competing.

For the first half of the year (1856) the gross receipts were £1,490,622, and for the second half £1,682,591, and the dividend on the ordinary

stock was at the rate of $5\frac{1}{2}$ per cent. per annum, an increase of $\frac{1}{2}$ per cent. on the dividends for the three preceding years. By this date the railway industry had developed to such proportions (it must be remembered it was but 30 years since the opening of the Stockton and Darlington Railway) that Robert Stephenson, probably the greatest railway expert of the day, estimated that 1 per cent. of the entire population of the country was dependent on railways in operation, irrespective of the thousands employed on railways then under construction.

During 1857 the Stockport, Disley and Whaley Bridge Railway, which we have previously seen was a subsidiary company of the North-Western's, secured Parliamentary powers for an extension of its line from Whaley Bridge to the important inland health resort of Buxton. The length of the new line was 9 miles, and the new capital £200,000. The Midland was much opposed to the making of the new line, although it did not oppose it in Parliament, because it had no *locus standi*. The Midland at this time were bent on reaching Manchester, and it was through this district that it hoped to do so. The making of this new line, however, somewhat complicated matters, and it was stigmatised by the Midland as a "block" line, merely meant to fill up the district. It is difficult to say how much truth there was in the Midland's accusation, but if it was true, it was undoubtedly a clever move on the part of the North-Western. The Buxton extension was not the only important Parliamentary business in 1857, for in the same year the North-Western obtained powers which virtually amounted to an amalgamation of the Shropshire Union Railways, which, as we have seen previously, had been leased by the North-Western for some time. This new agreement regulated and altered the financial

arrangements between the two Companies and empowered any of the Shropshire Union shareholders, who wished, to exchange their stock for London and North-Western stock at the rate of £100 of Shropshire Union stock for £50 of London and North-Western stock. From this it will be seen that the new agreement was practically an amalgamation. About this time the North-Western took over the Coalport Canal in Shropshire.

During this year Mr. F. Trevithick retired from his post of Locomotive Superintendent for the Northern District, and was succeeded at Crewe by Mr. J. Ramsbottom, who had previously been the Locomotive Superintendent of the Manchester and Birmingham Railway, with headquarters at Longsight, near Manchester. Francis Trevithick was the son of Richard Trevithick, the earliest pioneer and practical inventor of the steam locomotive. He was Locomotive Superintendent to the Grand Junction, and on the amalgamation in 1848 he became head of the Northern Division. He it was who started the great locomotive works at Crewe, and during his tenure of office there built many useful locomotives, the most famous of which was undoubtedly the *Cornwall*. As originally built the *Cornwall* was a "single," with 8 ft. 6 in. driving wheels; the cylinders, which were outside, were 17½ by 24, and the heating surface was 1,046 square feet, a curiosity of his design was that the boiler was placed underneath the driving axle. She was afterwards rebuilt by Mr. Ramsbottom in 1858, with her boiler over the driving axle, and ran for many years.

For the first half of the year the gross receipts were £1,556,518, and for the second half they were £1,682,060, and although the gross receipts showed an increase for the year, the expenditure also showed an increase, and the dividend, which was at

the rate of 5 per cent., showed a reduction of $\frac{1}{2}$ per cent. on that of the previous year.

Perhaps the most important happening of the year 1857 was the termination of what was generally known as the Euston Square Confederacy, the formation of which has been dealt with previously. The "confederacy," it will be remembered, was an alliance formed by the North-Western with most

ROBERT STEPHENSON'S MASTERPIECE: THE BRITANNIA TUBULAR BRIDGE ACROSS THE MENAI STRAITS.

of the important provincial railways at the time of the opening of the Great Northern Railway, and as it preserved to the North-Western many important districts and shut out the Great Northern from these, it was undoubtedly an excellent political move on the part of the North-Western. On the other hand it was naturally a very unsatisfactory state of affairs for the Great Northern, which never ceased to give up hope of obtaining an entrance to these preserved districts. At length the Great Northern was successful in inducing the Manchester, Sheffield and Lincolnshire, the "railway flirt," or the "Sheffield turncoat," as it has been called, to enter into an alliance with it in preference to the North-Western and the two companies signed a "fifty years' agreement." On reviewing the railway politics of the day, it really seems strange, and says a good deal for the diplomacy of the North-Western, under the guidance of Captain Mark Huish, that the North-Western was able to keep the Manchester, Sheffield and Lincolnshire in its confederacy for so long, seeing that the Manchester, Sheffield and Lincolnshire was practically complementary to the Great Northern, the two forming, by means of the junction between the two systems at Retford, a continuous line between London and Manchester and Lancashire. Still, the breakaway of the Manchester, Sheffield, and Lincolnshire was a distinct blow to the North-Western, since it meant the establishment of a second route between London and Lancashire, and a further increase of competition; but bad as their prospect was, it was by no means all, for the Midland was also beginning to break away from the influence of Euston Square. We have previously referred to the known desire of the Midland to gain admittance to Manchester, while at this time the Midland was busy constructing a southern extension from

Leicester to Hitchin, only distant some thirty miles from the Metropolis, so that the prospects of the formation of a third route between London and Lancashire was, even at this period not very remote ; and as Hitchin was situated on the Great Northern, it meant that in a short time there would be two routes to the Midland district, *via* Hitchin and the Great Northern, and *via* Rugby and the North-Western, and that the former would become a keen competitor of the latter's for the whole of the traffic of the Midland Railway. On the 1st of August the new allies, the Great Northern and the Manchester, Sheffield and Lincolnshire inaugurated their new service between London (King's Cross) and Manchester, the express trains on this route, although it was some fifteen miles longer, taking five hours and twenty minutes for the journey, or the same time as the best trains on the North-Western route. This was naturally a state of affairs which could not for long be tolerated by Euston, for since its inception the London-Manchester traffic had been a close preserve of the North-Western. Accordingly it was determined to make a vigorous reply to this invasion of what had for long been a North-Western stronghold, and so, in September, the North-Western Manchester service was remodelled and vastly improved. The time of the express trains was cut down from five hours and twenty minutes to four hours and forty minutes, the time of the "Parliamentary" was reduced from ten hours forty-five minutes to seven hours, and instead of eight through trains the new time-tables announced the running of eleven through trains daily. Such was the effective reply of "Euston" to the attack of the new alliance. The allies' reply to this was to accelerate their best train by twenty minutes, making the time of their best train five hours, or twenty minutes more than the North-Western's

best. At Manchester the London and North-Western and the Manchester, Sheffield and Lincolnshire shared a station, and the rivalry between the two routes became very keen, and as 1857 happened to be the year of the great "Art Treasures Exhibition" in Manchester the competition for the special excursion traffic became intense. The culminating point of rivalry between the two routes, however, was reached early in 1858, when both routes began to convey excursion passengers between Manchester and London for a return fare of five shillings. But, fortunately for both sides, this form of competition did not last very long, for about the middle of 1858 the North-Western and the Great Northern and Manchester, Sheffield and Lincolnshire came to an arrangement by which it was agreed to charge equal rates between London and Manchester. At the end of the year, however, the three companies came to a further agreement, by which it was arranged to divide the traffic between London and Lancashire, but the Bill, which was deposited for this purpose, did not find favour in the sight of Parliament chiefly owing to the opposition of the Midland, and (to look ahead a little) neither did a further Bill deposited in 1860, which provided for the division of the traffic between the four companies. And so competition for this traffic, but competition based on the principle of equal rates, still went on. Competition was at this time fast becoming a menace to railway prosperity, and the North-Western in particular was feeling keenly the effects of the new competition which was closing in upon it from all sides ; for in addition to the breakaway of the Manchester, Sheffield and Lincolnshire in 1857, in the following year the Midland started running trains into King's Cross, *via* Hitchin, and so the whole of the Midland-London traffic, which had previously travelled *via* Rugby, now had an alternative route

to London *via* Hitchin. Therefore, it is not at all surprising that we find that the year 1858 was an extremely bad one for the North-Western from a financial standpoint, and that the receipts showed a considerable decrease for both half-years, the gross receipts for the first half showing a decrease of over £170,000, while for the second half they showed a decline of £100,000. The dividend on the ordinary stock naturally was reduced, the distribution being at the rate of 4 per cent. per annum, compared to a dividend of 5 per cent. for the previous half-year. It is interesting to note that it was during this year that the company's finances were at their lowest ebb, and that the dividend of 4 per cent. was the lowest ever paid by the company on its ordinary stock. One of the most important events in the "domestic" history of the North-Western, which occurred during the year, was the retirement of the general manager, Captain Mark Huish, who had guided the fortunes of the company since its incorporation, and who, it will be remembered, had been previous to that general manager of the Grand Junction Railway. Captain Huish was succeeded in the head executive office by Mr. William Cawkwell. An important opening which took place during the year was that of the line from Watford to St. Albans. Previous to this St. Albans had been without railway communication, and great was the enthusiasm of the inhabitants when the North-Western opened a branch to the town. This took place on the 5th of May, when the town was *en fête*, and celebrated the occasion with processions, and bands and the usual adjuncts of early railway openings. The North-Western was received with open arms by the town, and everywhere its stations, its goods depôts, and its services were praised to the skies. "In six up and six down trains per day," says a local writer of the day, "we possess almost

equal advantages with a main line." But by far the most important event which occurred during 1858 was the arrangement, which was sanctioned by Parliament, for the amalgamation of the Chester and Holyhead Railway with the London and North-Western. By this arrangement the Chester and Holyhead was authorised to be amalgamated with the London and North-Western at a price not exceeding £50 for £100 stock. The Chester and Holyhead was such an important concern that no excuse is needed for inserting a somewhat full account of it. The Chester and Holyhead Railway originated in the general desire to secure a direct route to a port on the Welsh Coast for communication with Dublin and Ireland, and it was as an extension of the lines of the London and Birmingham and Grand Junction Railway that the Chester and Holyhead was first projected to complete the communication with Dublin. The project was of a comparatively early date; at first there were two schemes in the field, the one to Holyhead and the other to Porth Dinlleyn on the Carnarvonshire Coast, the latter being recommended by the Irish Railway Commissioners. George Stephenson surveyed the line from Chester to Holyhead in 1838, and at the same time also surveyed the Porth Dinlleyn route, the result of which was that he reported strongly in favour of the Holyhead route. The 'Holyhead' route was ultimately adopted, and in 1844 the Chester and Holyhead Railway was authorised by Parliament to construct a line 85 miles in length from a junction at Chester with the Grand Junction (which had absorbed the Chester and Crewe Railway a few years previous to this) to Holyhead Harbour. The line contained several large engineering works. Not very far from Conway is Penmaen Mawr, a great rocky headland, which rises precipitously from the seashore, and past this the railway had to be carried; at Conway

the river had to be crossed, while to carry the railway from the mainland to the Island of Anglesey the great Menai Straits had to be bridged. At first it was proposed to make use of Telford's Suspension Bridge, which carries the Holyhead road across the Straits, but it was soon realised that suspension bridges were quite unsuitable for railway traffic, and it was accordingly decided to construct a new bridge for the railway. The line was planned to hug the coast for a large part of the way, and apart from the aforementioned the works were not of an exceptionally heavy character, while the gradients were of a comparatively easy nature. The chief difficulty which confronted Robert Stephenson, who had succeeded his father as engineer to the Chester and Holyhead, was the bridging of the Menai Straits and, in a lesser degree, of the Conway River.

The width of water in the Straits at high tide was about 1,110 feet, and Stephenson's first idea was to construct a cast iron bridge with two main spans of 350 feet each, but owing to the objections of the Admiralty, who objected to any temporary interruption of navigation, this latter plan had to be abandoned. The problem which confronted Robert Stephenson was no easy one at the best of times, but the stipulations of the Admiralty accentuated the difficulties a hundredfold, for the latter even objected to any scaffolding being erected to support the bridge during its construction. Various plans were suggested for bridging the Straits, but all were found wanting, until the problem appeared to be well-nigh insuperable. At last, however, Robert Stephenson hit upon the idea of carrying the railway across the Straits in a mighty tube, an unique and novel idea, which was characterised by the President of the British Association as 'a bold proposal.' While Stephenson was still cogitating over this problem and

carefully weighing the 'pros' and 'cons' of the scheme, an incident occurred which, it is stated, largely influenced the famous engineer in coming to a decision. It happened that the *Prince of Wales*, an iron steamer, was being launched at Blackwall, but something went wrong, and instead of entering the water the ship was hung up for a length of 110 feet between the water and the wharf, and remained in that position undamaged. This incident, it is generally believed, decided Stephenson to construct a bridge made of wrought iron tubes.

There are some interesting remarks on this type of bridge in Robert Stephenson's narrative in Edwin Clark's book on the "Britannia and Conway Tubular Bridges." "I stood," says Stephenson, "on the verge of a responsibility from which I confess I had nearly shrunk. The construction of a tubular beam of such gigantic dimensions, on a platform elevated and supported by chains at such a height, did at first present itself as a difficulty of a very formidable nature. Reflection, however, satisfied me that the principles upon which the idea was founded were nothing more than an extension of those daily in use in the profession of the engineer. The method, moreover, of calculating the strength of the structure which I had adopted was of the simplest and most elementary character; and whatever might be the form of the tube, the principle on which the calculations were founded was equally applicable and could not fail to lead to equally accurate results." Mr. William Fairbairn, at the instigation of Robert Stephenson, carried out a series of exhaustive experiments on this type of bridge, and came to the conclusion that it would be possible to construct a bridge over the Straits composed of tubes "sufficiently strong to sustain, not only their own weight, but, in addition to that load, 2,000

tons equally distributed over the surface of the platform,—a load ten times greater than they will ever be called upon to support."

At last everything was ready for beginning the great work of constructing the bridges, and on April 10th, 1846, the foundation stone of the bridge over the Menai Straits was laid, and on May 12th, 1846, the foundation stone of the Conway Bridge was also laid. The Conway Bridge was much the

Photo]

[Mr. R. Eardley.

THE LONDON AND NORTH-WESTERN RAILWAY BRIDGE OVER THE CONWAY, PHOTOGRAPHED FROM A REAR COMPARTMENT OF THE TRAIN ON THE LEFT.

smaller undertaking, and consisted of two parallel tubes each weighing 1,180 tons, and each of 400 feet span, resting in masonry towers at each end. The Menai Bridge was a much more difficult feat; fortunately, in the middle of the Straits was situated the Britannia rock (indeed it was because of the rock that this location was

chosen, and it was from this rock that the bridge obtained its name), on which was built the central of the three towers, the Britannia tower, 230 feet high, on each side of this were side towers each 212 feet high, and on each side of the Straits were the abutments, each 87 feet high. From the abutments to the side towers were two parallel tubes, each of 230 feet span, and from the side towers to the central tower were parallel tubes of 460 feet span, the bottom of the tubes being 102 feet above high-water mark. In the centre the tubes rested rigid on the side towers, and in the abutments they rested on rollers so as to allow for contraction. Each tube was 15 feet wide, with a height varying from 23 feet at the ends to 30 feet at the middle. The work of constructing the Britannia Bridge proved to be a great one, about 1,500 men were employed on the job, while it is stated that 2,000,000 bolts, weighing some 900 tons, were used in its construction. Great workshops were built near the Menai Straits and at Conway, and at these places the immense tubes were constructed and taken thence to their destinations by pontoons, except the two smaller outer or land spans of the Britannia Bridge which were erected on scaffoldings in their permanent positions. The Conway Bridge was completed first, as was quite natural, seeing that it was by far the lesser undertaking. By March, 1848, the first tube of the Conway Bridge was ready for placing in position, and on the 6th it was floated into position on pontoons, but, unfortunately, one end of the pontoon was carried out of place by the current of the river, and it was five days before this could be put right. On April 8th the work of raising this enormous tube was begun by means of huge hydraulic presses, and it was lifted 8 feet at the rate of 2 inches a minute. By the 16th the tube was fixed in its permanent position, and

on the 18th Robert Stephenson passed through it with the first locomotive. The second tube was placed in its permanent position in January, 1849. The Britannia Bridge was probably the greatest engineering work undertaken up till that time, and the work of carrying the two gigantic metal tubes across the Menai Straits is of such interest that we will quote the description given of this feat in Samuel Smiles' "*Lives of the Engineers.*" "The floating and fixing of the great Britannia tubes," says Smiles, "was a formidable enterprise, though the experience gained at Conway rendered it easy compared with what it otherwise would have been. Mr. Stephenson superintended the operation of floating the first in person, giving the arranged signals from the top of the tube on which he was mounted, the active part of the business being performed by a numerous corps of sailors, under the immediate direction of Captain Claxton. Thousands of spectators lined the shores of the Straits on the evening of June 19th, 1849. On the land attachments being cut, the pontoons began to float off; but one of the capstans having given way from excessive strain, the tube was brought home again for the night. By next morning the defective capstan was restored, and all was in readiness for another trial. At half-past seven in the evening the tube was afloat, and the pontoons swung out into the current like a monster pendulum, held steady by the shore guide-lines, but increasing in speed to almost a fearful extent as they neared their destined place between the piers. "The success of this operation," says Mr. Clark, in his "*History of the Conway and Britannia Tubular Bridges,*" "depended mainly on properly striking the 'butt' beneath the Anglesey tower, on which, as upon a centre, the tube was to be veered round into its position across the opening. This position

was determined by a 12-inch line, which was to be paid out to a fixed mark from the Llanfair capstan. The coils of the rope unfortunately over-rode each other upon this capstan, so that it could not be paid out. In resisting the motion of the tube, the capstan was bodily dragged out of the platform by the action of the palls, and the tube was in imminent danger of being carried away by the stream, or the pontoons crushed upon the rocks. The men at the capstan were all knocked down, and some of them thrown into the water, though they made every exertion to arrest the motion of the capstan bars. In this dilemma Mr. Rolfe, who had charge of the capstan, with great presence of mind, called the visitors on shore to his assistance and handing out the spare coil of the 12-inch line into the field at the back of the capstan, it was carried with great rapidity up the field, and a crowd of people, men, women, and children, holding on to this huge cable, arrested the progress of the tube, which was at length brought safely against the butt and veered round. The Britannia end was then drawn into the recess of the masonry by a chain passing through the tower to a crab on the far side. The violence of the tide abated, though the wind increased, and the Anglesey end was drawn into its place beneath the corbelling in the masonry ; and as the tide went down, the pontoons deposited their valuable cargo on the welcome shelf at each end. The successful issue was greeted by cannon from the shore and the hearty cheers of many thousands of spectators, whose sympathy and anxiety were but too clearly indicated by the unbroken silence with which the whole operation had been accompanied." By midnight all the pontoons had been got clear of the tube, which now hung suspended over the waters of the Straits by its two ends, which rested upon the edges cut in the rock for the purpose, at the base of the Britannia and

Anglesey towers respectively, up which the tube had now to be lifted by hydraulic power to its permanent place near the summit. The accuracy with which the gigantic beam had been constructed may be inferred from the fact that, after passing into its place, a clear space remained between the iron plating and the rock outside of it of only about three-quarters of an inch!

Mr. Stephenson's anxiety was, of course, very great up to the time of performing this trying operation. When he had got the first tube floated at Conway, and saw all safe, he said to Captain Morrison, "Now I shall go to bed." But the Britannia Bridge was a still more difficult enterprise, and cost him many a sleepless night. Afterwards describing his feelings to his friend, Mr. Gooch, he said: "It was a most anxious and harassing time with me. Often at night I would lie tossing about, seeking sleep in vain. The tubes filled my head. I went to bed with them and got up with them. In the grey of the morning, when I looked across the Square (Gloucester Square, Hyde Park), it seemed an immense distance across to the houses on the opposite side. It was nearly the same length as the span of my tubular bridge!" When the first tube had been floated, a friend observed to him, "This great work has made you ten years older." "I have not slept sound," he replied, "for three weeks." Sir F. Head, however, relates that when he revisited the spot on the following morning he observed, sitting on a platform overlooking the suspended tube, a gentleman reclining entirely by himself, smoking a cigar and gazing, as if indolently, at the aerial gallery beneath him. It was the engineer himself, contemplating his new-born child. He had strolled down from the neighbouring village, after his first sound and refreshing sleep for weeks, to behold in sunshine and solitude that which during a weary

period of gestation had been either mysteriously moving in his brain, or like a vision—sometimes of good omen, and sometimes of evil—had by night as well as by day been flitting across his mind. The next process was the lifting of the tube into its place, which was performed very deliberately and cautiously. It was raised by powerful hydraulic presses, only a few feet at a time, and carefully under-built, before being raised to a farther height. When it had been got up by successive stages of this kind to about 24 feet an extraordinary accident occurred, during Mr. Stephenson's absence in London, which he afterwards described to the author in as nearly as possible the following words: "In a work of such novelty and magnitude, you may readily imagine how anxious I was that every possible contingency should be provided for. Where one chain or rope was required, I provided two. I was not satisfied with 'enough'; I must have absolute security, as far as that was possible. I knew the consequences of failure would be most disastrous to the Company, and that the wisest economy was to provide for all contingencies, at whatever cost. When the first tube at the Britannia had been successfully floated between the piers, ready for being raised, my young engineers were very much elated, and when the hoisting apparatus had been fixed they wrote to me, saying, 'We are now all ready for raising her; we could do it in a day, or in two at the most.' But my reply was: 'No; you must only raise the tube inch by inch, and you must build up under it as you rise. Every inch must be made good. Nothing must be left to chance or good luck.' And fortunate it was that I insisted upon this cautious course being pursued, for one day, while the hydraulic presses were at work, the bottom of one of them burst clean away! The crosshead and the chains, weighing

more than fifty tons, descended with a fearful crash upon the press, and the tube itself fell down upon the packing beneath. Though the fall of the tube was not more than nine inches, it crushed solid castings, weighing tons, as if they had been nuts. The tube itself was slightly strained and deflected, though it still remained sufficiently serviceable. But it was a tremendous test to which it was put, for a weight of upwards of 5,000 tons falling even a few inches must be admitted to be a very serious matter. That it stood so well was extraordinary. Clark immediately wrote me an account of the circumstance, in which he said: 'Thank God, you have been so obstinate, for if this accident had occurred without a bed for the end of the tube to fall on, the whole would now have been lying across the bottom of the Straits.' Five thousand pounds extra expense was caused by this accident, slight though it might seem. But careful provision was made against future failure; a new and improved cylinder was provided, and the work was very soon advancing satisfactorily towards completion." The foregoing account vividly portrays the work of constructing the great bridge, and shows a few of the many difficulties which had to be overcome. The first of the four centre tubes (the four outer, or land tubes, it will be remembered, were constructed in their positions on scaffolding) was raised and placed in its final position on the 13th of October, 1849; the second tube, which was the continuation of the first, was raised to its location by the 7th of January, 1850, and as the outer tubes had already been constructed in their positions, the bridge was now practically completed for one line of rails; it only required a certain amount of finishing touches and the laying of the lines before it could be opened. The work was pushed ahead, and by the 5th of March was ready for opening.

On that day the last rivet was put in the tube, and Robert Stephenson drove through on a locomotive, while after him there also went through an immense train, drawn by three locomotives, and containing 700 passengers. The third tube was got into position by the 11th of July, while the fourth tube was raised to its place by the 12th of August, and the whole bridge was opened for a double line on the 19th of October, 1850. On her return from Scotland at the end of 1852, Queen Victoria made a special journey to inspect the Britannia Bridge. The Royal party first went by road over the Menai Suspension Bridge, and proceeded to Llanfair; from there they returned by rail to the Britannia Bridge, through which the Queen passed in her saloon, while Prince Albert and the Prince of Wales walked along the top of the tube, conducted by Mr. Robert Stephenson, who explained to them many of the engineering details of the structure, and narrated some of the incidents of its construction. But we must leave the Conway and Britannia Bridges, and return to the main part of the Chester and Holyhead Railway. Apart from the bridges, perhaps the heaviest engineering works were experienced at Penmaen Mawr, between Conway and Bangor, for here Penmaen Mawr, a great rocky headland, rises precipitously up from the shore, and past this the railway had to be carried. A tunnel of some $10\frac{1}{2}$ chains was constructed, and on each side for some distance the railway was carried on a terrace, formed by blasting the rock, and on embankments protected by sea-walls. The line was here exposed to the full force of the elements, and, while it was still under construction, a large part of it was seriously damaged during a gale, part of the embankment being washed away, and in order to prevent the

recurrence of such an accident, the embankment was here replaced by an open viaduct. The construction of the line at this point and the protective measures which had to be taken against the sea, were extremely costly, and Robert Stephenson is said to have stated that if a long tunnel had been constructed in the first instance, through the solid rock of Penmaen Mawr, it would have effected a saving of from £25,000 to £30,000. The construction of the line was pushed ahead with all possible speed, and, as was only to be expected,

EXPRESS ARRIVING AT LLANDUDNO JUNCTION.

was completed before the Britannia Bridge. However, it was decided to open part of the line, and on May 1st, 1848, the Chester and Holyhead Railway was opened from Chester to Bangor, including one tube of the Conway Bridge, passengers and mails being conveyed between Bangor and Holyhead by coaches running *via* the Menai Suspension Bridge. On the 1st of August a further section was opened, that from Holyhead to Llanfair, and a regular mail service was inaugurated

between London, Euston, and Holyhead for Ireland, taking 10 hours for the journey, which included forty minutes in a coach between Bangor and Llanfair, pending the completion of the Britannia Bridge. On the 18th of March, 1850, one tube of the Britannia Bridge was opened for traffic, and the last link in the chain of communication between London and Holyhead was thus completed. One of the first problems which the Chester and Holyhead Railway had to face was the question of steamer communication with Ireland and the promised mail subsidy of £30,000 per annum. In these early days it was generally considered that railway companies ought not to combine ship-owning with their other businesses, and so it was at first decided to form a subsidiary company to run steamboats between Holyhead and Ireland; however, the railway company was successful in obtaining Parliamentary powers to run steamers, and so the Chester and Holyhead Railway added ship-owning to its other activities. The first fleet consisted of four ships, the *Anglia*, *Scotia*, *Hibernia* and *Cambria*, each having a gross tonnage of 500 tons, a length of 200 feet, and a speed of 14 knots per hour. At first the mails were conveyed in Admiralty steam packets, but in 1849 the Government called for tenders for carrying the mails; the Chester and Holyhead Railway, however, did not tender, as it considered (and many will think quite rightly) that the contract should have been given to it, since it had done so much in the way of supplying railway communication between London and Ireland. The contract was secured by the City of Dublin Steam Packet Company, which immediately placed its boats on the Kingstown-Holyhead route in competition with the Chester and Holyhead Company's boats. (Incidentally it may here be remarked that the City of Dublin Steam Packet Company has

managed to retain the contract ever since.) It certainly seems a hard fate that after all what the Chester and Holyhead Railway had done in the way of supplying railway communication to Ireland, it had to hand over the mails at Holyhead to another party, while all the time it possessed steamers of its own. At the time of its absorption by the London and North-Western the mileage of the Chester and Holyhead Railway was 105 miles, including the Mold Railway, which connected the town of Mold with the Chester and Holyhead, and which had previously been absorbed by the latter. The Chester and Holyhead was a natural extension of the London and North Western, and although formed as an entirely independent company, its eventual absorption into the North-Western system was sooner or later almost a certainty ; its consolidation into the North-Western system was an excellent piece of policy on the part of the latter, for by this union the London and North-Western obtained sole control of the whole of the line between London and Holyhead, the shortest route between the Capital of England and the Capital of Ireland, and the indisputable right to be counted as the main route between most parts of England and Ireland.

Having thus greatly improved its access to Ireland, the London and North-Western next turned its attention to improving its access to Scotland, and in 1859 took over by lease the Lancaster and Carlisle Railway. A few particulars of the latter, therefore, will not be out of place here. The first project for a line through this district came to the front during the years 1835-36 when Joseph Locke, at the instigation of the Grand Junction Railway, which was anxious to extend railway communication to Scotland, made a survey for a line running from Preston through Carlisle to Glasgow. At this date, by means of the lines of the London

and Birmingham, the Grand Junction, and the North Union, a chain of railways was authorised from London to Preston, and by the authorising in 1837 of the Lancaster and Preston Junction, the chain of communication was further extended northwards to Lancaster. However, while this chain of communication was creeping onwards through the North-West of England towards the Scottish Border, a rival scheme also came forward for constructing a line to Scotland through York, Newcastle and Berwick, the route south of York being *via* the York and North Midland and the North Midland to Derby, the Midland Counties from Derby to Rugby, and southwards to the Metropolis by the London and Birmingham Railway.

As the question of railway communication with Scotland was at this time rightly considered to be a national one, and as it was generally considered that one line would amply suffice for the traffic between the two countries, a Special Commission of the Board of Trade was appointed in August, 1839, to go into the subject thoroughly and compare the routes *via* York and *via* Lancaster. The report of the Commissioners was published early in 1841, and in it they gave the preference to the West Coast route to Scotland *via* Lancaster, Carlisle, Lockerbie, and Lanark to Glasgow, with a branch from somewhere near Thankerton or Symington to Edinburgh. This naturally gave a fresh impetus to railway promotion along this route, and so a project for a railway between Lancaster and Carlisle again came prominently to the fore. Even then there were many who thought that it could never pay, and it was classed by many as an useless speculation; it was pointed out that the proposed line would run through a district practically barren of inhabitants, and even more barren of goods traffic, while if it was expected that the line would prosper

on the through traffic, the projectors were destined to be grievously disappointed, for the through traffic would continue to be carried, as heretofore, in the 'splendid steamships' running between Liverpool and the other West Coast ports and Greenock.

The promoters of the Lancaster and Carlisle Railway, however, had great confidence in the possibilities of their scheme (and they turned out to be right, for it afterwards paid large dividends in spite of the 'splendid steamships'), and accordingly they persevered with their project in spite of all opposition. The result of this was that a Bill for the Lancaster and Carlisle Railway was presented to Parliament and passed in 1844. This Bill provided for the construction of a single line 70 miles in length. Joseph Locke was the engineer to the undertaking, and he, unlike the Stephensons, who always considered a well-graded line a *sine qua non*, laid the line out with somewhat heavy gradients, a system which, though undoubtedly cheaper in the initial outlay, is not afterwards conducive to low working expenses. The country, through which the line was planned to pass, was extremely mountainous, and to have secured a line with easy gradients would have entailed enormous expense. The line was laid out to cross Shap Fell at a height of over 900 feet above sea level, with a gradient of 1 in 75 for between 4 and 5 miles, a proceeding which a few years earlier would have been derided as sheer folly.

In 1845 the prospects of the Company were greatly improved by the authorising of the Caledonian Railway from Carlisle to Edinburgh and Glasgow, and in order to be able better to deal with the increased traffic which this promised, it was decided to construct a double line. The work of construction was pushed ahead with all speed, Brassey was the contractor, and in 1846 the line



Photo] UP WEST COAST CORRIDOR EXPRESS, NEAR GARSTANG; 4-4-0 LOCOMOTIVE, *Bloodhound*. [Mr. H. Gordon Tiddy.

was opened for traffic, the cost of the undertaking being about £1,300,000.

In 1849 the Lancaster and Carlisle Railway came to an agreement with the Lancaster and Preston Junction, whereby the former took over the management of the latter, working the two lines as one system, and pooling the receipts in the proportion of $\frac{15}{22}$ to the Lancaster and Carlisle, and $\frac{7}{22}$ to the Lancaster and Preston.

Another line which the Lancaster and Carlisle took over was the Kendal and Windermere Railway, which it leased. The Kendal and Windermere was a line of about 10 miles, connecting the Lancaster and Carlisle with the Lake district; it commenced at Oxenholme on the Lancaster and Carlisle and ran through Kendal to Windermere.

In 1847 the Caledonian was opened from Carlisle to Beattock, and a connecting service was inaugurated by the London and North-Western, Lancaster and Carlisle and Caledonian Railways, leaving London at 10 a.m. and arriving at Beattock at 11.15 p.m., whence to Edinburgh and Glasgow the journey was completed by coach, reaching the latter cities at about 5 or 6 a.m. next morning. On the 15th of February, 1848, however, the Caledonian was able to open its line throughout to both Edinburgh and Glasgow, and for the first time an all-rail route was established between London and Edinburgh and Glasgow. At first the quickest train run by the London and North-Western, Lancaster and Carlisle and Caledonian Railways between London and the two chief Scottish cities occupied about $15\frac{1}{2}$ hours on the journey, but this was shortly afterwards cut down to 12 hours.

In the early 'fifties' the Midland began to cast glances towards the far North and to hanker after developing a traffic to Scotland, and in 1852 leased the line of the North-Western Railway (generally called the little North-Western, to distinguish it

from its Metropolitan namesake), which connected the Midland system at Skipton, in Yorkshire, with the Lancaster and Carlisle at Lancaster. The Lancaster and Carlisle was naturally not at all averse to the project of handling a large new traffic from the whole of the Midland system, but, unfortunately, the route was found to be too circuitous, so, in 1857, the Lancaster and Carlisle obtained Parliamentary powers for a direct new line connecting the two systems, from Low Gill, on its own line, to Ingleton, to which town the little North-Western possessed a branch line. But this new line was destined never to develop into a great traffic artery, for before it was opened—which event took place in 1861—the Lancaster and Carlisle Railway had passed under the control of the London and North-Western, and however glad the Lancaster and Carlisle might have been to exchange traffic with the Midland, these feelings were not shared to the same extent by the London and North-Western, the latter naturally preferring to consign all traffic to the South along its own main line.

As we have previously said, the London and North-Western came to an agreement with the Lancaster and Carlisle, and in 1859 the North-Western took over the working of the line for 999 years, the terms of the lease specifying that “the plant, rolling stock and movable property to be used by the lessees during, and to be restored at the end of, the lease”! The absorption of the Lancaster and Carlisle into the North-Western system was an extraordinary good stroke of policy on the part of the London and North-Western. By it the London and North-Western obtained the control in its own hands of the entire line between London and Carlisle, a distance of some 300 miles, and at Carlisle full facilities for the direct interchange of traffic with the Caledonian and railways

in connection, tapping practically the whole of Scotland. If the Lancaster and Carlisle had by chance fallen into other hands, or while still remaining independent had become estranged from the North-Western, which was quite within the range of practical politics, seeing that it had hankered after obtaining Scottish traffic from the Midland, the amount of harm which the Lancaster and Carlisle could have inflicted on the North-Western's traffic would have been incalculable. By its absorption the London and North-Western greatly improved its position and consolidated its system.

We have now seen how the London and North-Western greatly strengthened its position at two of the extremities of its system—firstly, by absorbing the Chester and Holyhead, which considerably improved its route to Ireland, and, secondly, by taking over the Lancaster and Carlisle, which greatly strengthened its position in Scotland. We have now got to chronicle another great improvement which the North-Western undertook at another extremity of its system. This time the improvement was in London, and its object was for the better development of the traffic between the north and the district south of the Thames. We have previously seen how, in 1836, a line had been incorporated under the title of the Birmingham, Bristol and Thames Junction Railway, whose chief object was to connect the 'Birmingham' line (the London and Birmingham) and the 'Bristol line' (the Great Western) with the important district around Kensington, in the West of London, and with the 'Thames,' by means of the Kensington Canal. This line afterwards fell into the hands of the London and Birmingham and Great Western Railways, and changed its somewhat cumbrous title to the simpler one of the West London Railway.

The West London was not an unqualified success. According to *Punch*, it led from "nowhere to nowhere," and the pages of that journal are full of references to the 'Kensington Railway'; indeed, so often was it referred to in that paper that it became known as '*Punch's* line.' The ridicule heaped on the line, its management, its working and its traffic was never-ceasing, and when the line did chance to obtain a passenger (which, according to *Punch*, did happen at rare intervals), the fact received due prominence in the pages of that paper. As a passenger line, the West London Railway was far from a success, and Bradshaw's Guide for January, 1845, contains the following terse announcement, "West London Railway closed for the present." However, if the West London was not a success as a passenger line, it was useful as a goods line, and in 1859, in order to increase further its usefulness, powers were obtained for extending it beyond Kensington and across the Thames to a junction with the southern railway systems. The new line was promoted as a separate company under the title of the West London Extension Railway, and in addition to the two partners in the West London, the London and South-Western and London, Brighton and South Coast Railways also participated in it, the line being owned in the proportion of one-third each by the London and North-Western and Great Western, and one-sixth each by the London and South-Western and London, Brighton and South Coast. The line ran from Kensington to Clapham and Battersea, and was over four miles in length. The chief work from an engineering point of view was the bridge over the Thames, which was designed by Mr. William Boker, Chief Engineer of the North-Western. The bridge has a total length of 340 yards, and is composed of six arches of 120 feet span and seven arches of 25 feet span,

each with a headway of 20 feet above high water mark. The construction of the West London Extension Railway promised to improve greatly the North-Western's access to the South of England, especially to the systems of the London, Brighton and South Coast and South-Eastern Railways, and also in a lesser degree to the system of the London and South-Western, for the North and South-Western Junction Railway already provided at this date a fairly direct and serviceable route between the South-Western and the North-Western systems.

For the first half of 1859 the gross receipts were £1,663,287, and for the second half they were £2,104,206, for the first time in the history of the Company exceeding £2,000,000 in a single half-year. The dividend on the ordinary stock was at the rate of $4\frac{3}{4}$ per cent. per annum, an increase of $\frac{3}{4}$ per cent. on the previous year's dividend.

The year 1859 is remarkable in the history of the London and North-Western, as it was in this year that interlocking was first introduced on the North-Western system. Previous to this there had been no real attempt made at locking points and signals, but in this year an interlocking frame was fixed at Willesden Junction, by means of which it was made impossible for a signalman to signal a line as all clear which had the points set against it. Although this was the first time the system had been tried on the North-Western, it was not the pioneer installation, for it had been successfully inaugurated on the South-Eastern at Bricklayers' Arms Junction in 1856. The system of interlocking was from the start a great success, soon spreading all over the system, and it is recorded that fourteen years after its initial trial there were over thirteen thousand interlocked levers in use on the London and North-Western, figures which speak for the effectiveness of the system.

It has already been recorded in this chapter

how in 1857-58 the Manchester, Sheffield and Lincolnshire broke away from 'Euston Square' and allied itself with the Great Northern, and how great rivalry subsequently broke out between the North-Western and the allies, which resulted in a rate war to Lancashire. It was soon realised, however, that this policy was detrimental to the interests of all the three companies, and at the end of 1858 an agreement was arranged between the two parties, which recognised the principle of equal rates and fares, arranged for the interchange of traffic at through rates between the different systems, settled the differences in regard to London Road Station, Manchester, which was used by the London and North-Western and the Manchester, Sheffield and Lincolnshire, and generally arranged all matters in dispute between the two factions.

One of the concessions conceded to the Great Northern and 'Sheffield' Companies by the London and North-Western was access to Liverpool for their traffic. Accordingly, with a view to accommodating this increased traffic, the North-Western (in 1859) obtained powers for a line running from Edge Hill to a junction with the St. Helens Railway at Garston, whence to Warrington the latter line ran (during the next year the North-Western obtained powers to lease this portion of the St. Helens Railway at a rental of £12,000 per annum), while at the same time (1859) the North-Western obtained Parliamentary powers to lease the Warrington and Stockport Railway jointly with the St. Helens Railway for a term of 999 years. The Warrington and Stockport ran from a junction with the St. Helens Railway at Warrington to a junction with the Manchester, South Junction and Altrincham Railway at Timperley, and so by means of these new arrangements the North-Western was successful in obtaining an alternative route between Manchester and Liverpool,

independent of the original Liverpool and Manchester line. But this was not the only Parliamentary activity of the London and North-Western in this session, for Parliamentary sanction was also secured for constructing a line from Aston, near Birmingham, to Sutton Coldfield; while powers were obtained to subscribe

(Note the 'Pusher' at rear.) [Mr. H. Gordon Tiddy

Photo] GOODS TRAIN DRAWN BY 0-6-0 LOCOMOTIVE, NEAR PRESTON.

£50,000 to the Oldham, Aston and Guide Bridge Railway, then under construction.

On October 12th, 1859, Robert Stephenson died. Robert Stephenson was from an early date closely connected with the London and North-Western and its predecessors, and it was he, his father, and Joseph Locke who practically laid out the main London and North-Western system. He assisted in the construction of the *Rocket*, which won the £500 prize at Rainhill; and he was the engineer of the London and Birmingham Railway, the main stem of the London and North-Western system, and the first great trunk line made, during the construction of which he is recorded to have walked the whole distance between London and Birmingham, a distance of over 112 miles, more than twenty times. In the building of this line he executed such works as the Kilsby tunnel, and the Blisworth and Tring cuttings, works which even in these days would be considered by no means light, but which in those days were looked upon as veritably gigantic. In addition to the London and Birmingham, he laid out many other lines, which afterwards became merged in the North-Western. The chief of these is undoubtedly the Chester and Holyhead Railway, which included the great Britannia and Conway Bridges, the construction of which has been dealt with earlier in this chapter. It must not be thought that he was connected solely with the London and North-Western, for he was also concerned with many other lines, some of which afterwards became parts of the Midland and North-Eastern Railways. Besides the Britannia Bridge, he also constructed the great High Level Bridge at Newcastle-upon-Tyne, the great Borden Bridge at Berwick-on-Tweed of twenty-eight arches, and the still greater Victoria Bridge over the St. Lawrence in Canada. In addition to all this, he found time to lay out railways in Belgium, Switzerland,

Germany, various other parts of Europe, Canada, India and Egypt. During the latter end of his life he went in for politics, and was returned as the Tory member for Whitby. It is a most curious fact that on one of the last occasions on which he addressed the House it was to give his verdict against what afterwards became one of the greatest engineering and financial successes of the century. This was the question of the Suez Canal, and during the debate he exclaimed, "I have travelled the whole distance on foot, and I declare there is no fall between the two seas. Honourable members talk about a canal. A canal is impossible—the thing would only be a ditch." There is no doubt that the railway system of the world owes more to the ingenuity and resourcefulness of George and Robert Stephenson than to any other two men. Both father and son were offered knighthoods for their national services, but both declined them. Robert Stephenson was born at Willington, near Newcastle, in 1802, and he died in London in 1859. He is buried in Westminster Abbey beside Telford, the famous builder of roads, whose great Menai Suspension Bridge to this day spans the Menai Straits beside Stephenson's Britannia Bridge.

CHAPTER IX.

1860—1863.

THE SOUTH STAFFORDSHIRE RAILWAY—PROPOSED
JOINT ABSORPTION WITH THE GREAT NORTHERN
OF THE MANCHESTER, SHEFFIELD AND
LINCOLNSHIRE—THE BIRKENHEAD RAILWAY
— L.N.W. ENTRY INTO BURTON — THE
SHREWSBURY AND HEREFORD RAILWAY—THE
McCONNELL ENGINES—MIDLAND EXTENSION
TO LONDON—AND OTHER MATTERS.

By means of the policy of extension and consolidation which has been narrated in the last chapter, the London and North-Western greatly improved its system. Thus, by the beginning of 1860, the London and North-Western had obtained sole control of the entire line between London and Carlisle, and in conjunction with its ally, the Caledonian, with which it connected at the latter place, provided the chief route between England and nearly all parts of Scotland, for at this date Edinburgh was the only town in which the rival East Coast Railways were serious competitors, Glasgow being a close preserve of the West Coast Companies. For the Irish traffic the London and North-Western was in an equally fortunate position, for the absorption of the Chester and Holyhead line had given it sole control of the line between London and Holyhead, the main route to Ireland, along which the Irish mails were conveyed. In addition to the predominating position which it occupied in Scotland and Ireland, the North-Western provided the only route to most of North Wales; to Birmingham and the adjacent industrial district it was the chief route from

London, although it is true there was a certain amount of "broad-gauge" competition here on the part of the Great Western. As the main route between London and Lancashire, the London and North-Western was then, and indeed has been ever since, *facile princeps*; between London and Manchester it was considerably the shorter route, and obtained the bulk of the traffic despite the spirited competition of the Great Northern and Manchester, Sheffield and Lincolnshire, while in Liverpool the London and North-Western was practically free from serious competition, at any rate, as regards passenger traffic. In addition to this, it provided the main or only route between London and the numberless important towns with which Lancashire abounds. Into Yorkshire it also penetrated, reaching Huddersfield, Dewsbury and Leeds, but here, it must be confessed, it was handicapped by a greater mileage, especially in regard to London traffic. From what has just been said, it will be conceded by all impartial readers that by the year 1860 the London and North-Western had clearly obtained the unquestionable right to be considered the premier railway system of the British Isles, a position which it has ever since retained. After such important extensions as the absorptions of the Chester and Holyhead, and the Lancaster and Carlisle Railways, one might imagine that the North-Western Board might have been tempted to rest on its laurels, and have been loath to undertake any fresh financial obligations. But, fortunately, this was not the case, and several important extensions and consolidations were soon carried out in various parts of the Company's system which might be expected to greatly strengthen the Company's position in those parts. In 1860 a nominally independent railway was authorised under North-Western auspices to construct a line from Bedford

to Cambridge; at Bedford it joined the Bedford and Bletchley branch of the North-Western and terminated at a junction with the Eastern Counties Railways (afterwards Great Eastern) at Cambridge. In addition to giving the North-Western access to the important town of Cambridge, this line promised, when constructed, to provide the North-Western with a new and fairly direct route for traffic between the Midlands and North and a large part of the Eastern Counties.

In the last chapter we referred to the arrangements which the North-Western carried out in order to secure a second route between Liverpool and Manchester, and it will be remembered that the North-Western, jointly with the St. Helens Railway, secured powers to absorb the Warrington and Stockport Railway. During this year it leased about 14 miles of the St. Helens Railway at a rental of £12,000 a year, being that portion of the St. Helens Railway between Garston and Warrington, which formed part of the new route between Liverpool and Manchester. By this lease the North-Western obtained continuity of control, either sole or joint, along the whole of the new route. But perhaps the most important event in the history of the North-Western during 1860 was the leasing of the South Staffordshire Railway. The South Staffordshire was an important line in the "Black Country." Starting at Dudley, it ran through Walsall and Lichfield to Wichnor Junction, where it joined the Midland, running to Burton-on-Trent and Derby; there was also an important branch line running from Walsall to Cannock. A curiosity of the South Staffordshire was the fact that it was not worked by the railway company itself, but was let to a contractor, who undertook the working of the line. The relations which existed between the London and North-Western and the lessee were of a cordial character, and, as

we have previously seen, the London and North-Western supplied the locomotive power for working the line. But, notwithstanding this intimate connection, it was recognised at Euston that the line ought to become definitely part of the North-Western, especially as it was foreseen that, if it did not, it probably might become part of the Midland system; and as the North-Western was anxious to keep this district as much as possible to itself, negotiations were opened with the South Staffordshire and its lessees, which resulted in the lease being transferred to the North-Western. The entire working of the South Staffordshire was therefore undertaken by the London and North-Western, and this further strengthened the latter's already strong position in the important manufacturing district which has Birmingham for its centre. Towards the end of 1860 the Ingleton-Lowgill line was opened for traffic; this line, as stated in the last chapter, was promoted by the Lancaster and Carlisle Railway in order to improve its connection with the Midland. In the meantime, however, the Lancaster and Carlisle became merged in the London and North-Western, and the latter naturally did not view the prospect of exchanging a large traffic with the Midland at Ingleton with the same amount of enthusiasm as the Lancaster and Carlisle had done. The Ingleton-Lowgill line was about 19 miles in length, and was constructed throughout for a double line; the Midland commenced to use it for its Scottish traffic, but from the first it was never a great success, and there were constant bickerings between the North-Western and Midland, and it was not very long before the Midland sought for new access to Scotland, the details of which are fully dealt with in a later chapter.

The year 1860 unfortunately witnessed a regrettable accident on the London and North-

Western, the worst accident indeed which had up till this date occurred on the line. An express mail train came into collision with a cattle truck at Atherstone with disastrous consequences, resulting in the death of twelve persons. Up till this date the London and North-Western had been fairly free from serious accidents, especially when we take into consideration the large traffic it was conveying and the crude safety arrangements at its disposal. Previous to the Atherstone accident there had been three bad accidents on the line, one at Wolverton in 1847, when a train ran into a siding, resulting in the death of seven persons; another at Frodsham, when there was a death-roll of six; and a derailment at Bicester, which caused the death of six persons.

The financial results of the year 1860 were distinctly satisfactory, the gross receipts were £4,324,552, while the dividend on the ordinary stock was at the rate of $5\frac{1}{8}$ per cent. per annum, as compared with $4\frac{3}{4}$ per cent. for the preceding half-year.

In a previous chapter it has been narrated how the London and North-Western and the allied Great Northern and Manchester, Sheffield and Lincolnshire waged a fierce rate-war for the London and Lancashire traffic, and after finding this fierce competition inimical to the interests of both, afterwards settled down to divide the traffic. A Bill promoted by the three Companies for the division of the London-Lancashire traffic was unsuccessful, chiefly owing to the opposition of the Midland, and a further Bill, which included the Midland in the division, also met with no success. After this the three Companies apparently proceeded to work jointly the London-Lancashire traffic without securing any definite Act of Parliament for its division, and by this means the Midland was practically shut out from participation

in the London-Lancashire traffic. Towards the end of 1860 it was suggested that the London and North-Western and Great Northern should jointly absorb the Manchester, Sheffield and Lincolnshire Railway, as it was seen that this step would practically give a monopoly of the district to the two former and greatly improve their positions in the district, should there be at any time in the future a threatened invasion by the Midland. This proposal once suggested was readily taken up, and negotiations were soon in train. The three general managers, Mr. Cawkwell of the North-Western, Mr. Seymour Clarke of the Great Northern, and Mr. Watkin of the Sheffield, met together and proceeded to discuss the preliminary terms. At length the three general managers settled on terms which they agreed to recommend to their respective boards for adoption. These terms were that the London and North-Western and Great Northern Railways should jointly guarantee the Manchester, Sheffield and Lincolnshire Company a dividend beginning at $1\frac{1}{2}$ per cent. in 1861, and increasing by $\frac{1}{2}$ per cent. rises until it reached to $3\frac{1}{2}$ per cent. in 1866. These terms were extremely generous, for the Manchester, Sheffield and Lincolnshire was a poverty-stricken concern, which frequently paid no dividend on its ordinary stock.

But one is better able to judge the generosity or not of the terms, when one knows the dividend history of the Company. From 1849 to 1853 it paid nothing on its ordinary stock; in 1854, $\frac{1}{8}$ per cent.; in 1855, $\frac{1}{4}$ per cent.; in 1856, $\frac{3}{4}$ per cent.; in 1857, one per cent.; in 1858 it again passed its dividend; while for the next two years it paid $\frac{7}{10}$ per cent., and $1\frac{1}{4}$ per cent. respectively. From the foregoing it will be perceived that the price that the managers of the North-Western and Great Northern were willing to pay in order to obtain control of the "Sheffield" was by no means

niggardly. That the North-Western board did not think it too high, in view of the advantages it promised to confer on them, is proved by the fact that when the Managers' agreement came up before the Board of Directors for ratification, at the beginning of 1861, it was passed by a majority of twenty-five to one. Unfortunately the "one" was a very important "one" indeed, for it was the vote of none other than the Chairman, Lord Chandos, who consequently, as he could not carry his colleagues with him, nor agree with their policy, thereupon resigned the Chairmanship. Lord Chandos was succeeded in the Chair by Admiral C. R. Moorsom. Soon after the Managers' agreement had been almost unanimously passed by the North-Western board, it came before the Great Northern board for ratification, but at King's Cross it encountered a very different reception to what it had met with at Euston, and eventually the Great Northern refused to proceed further with the matter, as it considered the price too high; and so the matter was brought to an abrupt end. It is difficult to say whether the absorption of the Manchester, Sheffield and Lincolnshire by the London and North-Western and Great Northern jointly would have been a good line of policy from the North-Western point of view, but in looking back and reviewing latter day railway history, everything seems to show that it would have been a distinctly good policy for both the North-Western and the Great Northern; if it had come about there can be no doubt the Cheshire Lines would not have come into existence, nor, it goes without saying, would the Manchester, Sheffield and Lincolnshire have been extended to London, and so the North-Western would not have had to encounter in later years the competition of these two systems, which are to-day two of its keenest competitors. On the other hand, if these two

systems had not come into being, it is possible, though not probable, that other lines would have been built in their place. There is one thing of which there can be no doubt, and that is, that it would have been an excellent thing for the North-Western to have obtained access on its own system to Sheffield, the great coalfields of South Yorkshire, and to a port on the East Coast. However, as we have said, the Great Northern refused to agree to the terms, and so the chance of purchasing the "Sheffield" at a guaranteed $3\frac{1}{2}$ per

NEW STREET STATION, BIRMINGHAM.

cent. was allowed to slip by ; admittedly, the price was high, but if the North-Western and Great Northern could have looked into the future, there can be little doubt that the latter part of British Railway History would have to have been re-written.

In 1861 the London and North-Western was successful in obtaining an entry into the rising town of Birkenhead, for in that year the Birkenhead Railway was vested in the London and North-Western and Great Western Railways.

The Birkenhead Railway was an amalgamation

of the Birkenhead, Lancashire and Cheshire Junction and the Chester and Birkenhead. The line from Chester to Birkenhead, 15 miles, was opened in 1840, and the line from Chester to Walton Junction, near Warrington, 17 miles, was opened in 1850. In 1859 the Company was authorised to adopt the title of the Birkenhead Railway, and in the same year the Company secured powers for a branch of some 9 miles from Hooton to Helsby, and as we have previously recorded in 1861, the Company was vested in the North-Western and Great Western jointly. By the terms of the agreement the London and North-Western and Great Western assumed the debenture stock and liabilities of the Birkenhead Railway, and agreed to pay a guaranteed dividend on the Birkenhead ordinary stock, commencing at $2\frac{1}{2}$ per cent., and rising by stages until it reached 4 per cent. in 1866. The Birkenhead Railway was an important line possessing an ordinary capital of close on two millions with a further capital liability on debentures and loans of nearly half a million; its absorption into the North-Western system was an excellent thing for the latter, as it provided the latter with direct access to Birkenhead, with its great and growing docks and other important places on the South side of the Mersey. Liverpool and the adjacent districts has always been a stronghold of the London and North-Western ever since the latter's incorporation in 1846, and the absorption of the Birkenhead Railway jointly with the Great Western was one of the things which has helped to maintain this state of affairs. By the absorption the North-Western obtained the same leading position on the South side as it had always occupied on the North side of the Mersey. Another absorption which the London and North-Western carried out during 1861 was that of the St. George's Harbour and

Railway Company, a small affair incorporated in 1853 to construct a harbour and railway at Llandudno in North Wales.

As regards new lines, the only opening of any note in 1861 was that of the Coalport branch. This branch was a single line commencing at Hadley near Wellington on the Shropshire Union, and running almost due South through a colliery district to the town of Coalport, a place celebrated for the manufacture of china. During this year the London and North-Western obtained its first direct access with its own trains to Burton-on-Trent, the premier town for the brewing of beer, and this led to a miniature warfare with the Midland, which looked upon Burton as one of its strongholds and resented the former's presence there. The matter arose in this manner: the North-Western, as we have seen, in 1860 absorbed the South Staffordshire Railway, which ran from Dudley through Walsall and Lichfield to Wichnor Junction, situated on the Midland between Birmingham and Burton, and in 1861 it announced its intention of exercising the running powers which it possessed, as successors to the South Staffordshire Railway, over the Midland between Wichnor and Burton. But although the London and North-Western was determined to enter Burton, the Midland was equally as determined that they should not enter the town, and this led to warfare between the two railways, warfare which was not merely confined to words. We cannot do better than tell the whole story at first-hand in the words of Mr. G. P. Neele, then superintendent of the Central district of the London and North-Western. "In the autumn," says Mr. Neele, "the London and North-Western Company determined to avail themselves of the South Stafford powers and to run their own goods trains into Burton-on-Trent over the Midland rails

from Wichnor Junction; I had been over the sidings in Burton with Mr. Charles Mason" (then assistant general manager, London and North-Western Railway) "and had received special instructions from both Mr. Stewart, the Secretary, and Mr. Cawkwell on the subject. Times for the proposed running of the trains had been submitted to the Midland Company, and early on November 1st I came down from Birmingham in charge of the first train. Arrived at Wichnor Junction I was surprised to see a large number of plate-layers, about two or three engines in steam, and a saloon carriage in the siding. One of the engines with steam up had attached to its tender the V crossing of the junction over which we had to pass to get to Burton. Mr. Needham" (then superintendent of the Midland), "who, it appeared, had bivouacked all night in the saloon, came to meet me, and on my requiring to be allowed to pass to Burton with our train, politely declined to give permission. I drew forward on our engine as far as safety allowed, claiming to proceed. This was again refused; there was nothing to be done but to retire from the scene and telegraph results, awaiting further instructions. On asking Mr. Needham for what purpose the force of Midland men was requisitioned, he told me that it was currently reported that the London and North-Western were coming down with a body of 300 men and three engines intending to force their way into Burton, and that it had been determined to resist. Instructions came to me by telegraph; once more at the appointed time in the afternoon a passage must be claimed. Some wiser counsels had prevailed at Derby, for when the time came the opposing force had disappeared and we made a triumphal journey towards Burton, the engine-driver taking the opportunity of sounding noisy and repeated cock crows on his steam whistle.

Thus the London and North-Western entered the "town of beer," and added Burton to the increasing list of important towns on its system. The foregoing account of its entry illustrates in a marked degree the jealousies which existed between the great railways and the continuous bickerings which went on amongst them.

Unfortunately, the year 1861 was marred by a terrible collision which took place between a North-Western train and a train of the North-Western's ally, the North London, at Kentish Town, on September 2nd. A North-Western ballast train was crossing the line at a siding when it was run into by a North London excursion train with disastrous consequences, resulting in the death of 16 persons, while 317 passengers were more or less seriously injured.

From a Parliamentary point of view the year 1861 was an exceedingly important one for the London and North-Western, for during the year the North-Western secured powers for a variety of new works situated in different parts of the country; perhaps the chief of these was the powers for the construction of a great bridge across the river Mersey at Runcorn, which promised when made to shorten considerably the distance between Liverpool and the South by saving the detour round by Warrington. The proposal to construct this bridge at great cost was truly commendable, and shows the enterprise of the North-Western Company, as the latter already possessed by far the shortest route between Liverpool and the South and was practically free from competition in that city. In addition to the great bridge and the connecting lines for the "cut-off" from Aston to Ditton, the North-Western also obtained powers for the enlargement of its station in Liverpool and the construction of a branch in Liverpool from Edge Hill to Bootle. Besides these, Parliamentary

powers were also obtained for a new line from Chelford, on the Manchester-Crewe section, to the old-fashioned Cheshire town of Knutsford; for a line from Stockport to Cheadle; for a short railway at Burton-on-Trent; and for a new line of some 13 miles from Eccles, on the Manchester-Liverpool section; through Bedford and Leigh to Wigan on the main line to the north—this latter line promised to shorten the distance between Manchester and the North and Scotland. In addition to the powers for new lines, Parliamentary sanction was also obtained for Bills for the better regulation of two important joint stations, namely, Manchester London Road, joint with the Manchester, Sheffield and Lincolnshire; and Carlisle Citadel station, joint with the Caledonian Railway. By the latter Act it was arranged for the raising of new capital, and for the management of the stations to be undertaken by a joint committee of the two railways, whilst the agreements which had been entered into for the admission into the station of the Maryport and Carlisle, the North British and the Glasgow and South-Western, were also confirmed by Parliament. For the purpose of carrying out these works the London and North-Western obtained powers to raise new capital and loans to the extent of over two million. But even this does not exhaust the list of new works in which the North-Western was interested during 1861, for curiously enough perhaps the most important line of all, from a North-Western point of view, passed during the year was a line which was not promoted by the London and North-Western, but by the North London. The North London, as has already been recorded earlier, was originally promoted as the East and West India Docks and Birmingham Junction Railway, chiefly in the interest of the London and Birmingham Railway, to connect the

latter at Chalk Farm with the London Docks. After the line was opened it was found that there was a considerable traffic into the City, which was despatched into the Fenchurch Street terminus of the London and Blackwall Railway *via* the junction at Bow, which existed between the two systems. This circuitous route, however, was soon found to be unsatisfactory, and the North London decided to build an independent line of its own into the City. In this scheme, it almost goes without saying, seeing that it was so inseparably bound up with the North-Western, it received the ardent support of the latter, and on 22nd of July, 1861, the North London obtained Parliamentary powers to construct an extension of about two miles from Kingsland to Liverpool Street in the City, an extension which has been somewhat aptly christened the 'Happy Afterthought.' By the term of this Act the North-Western was authorised to subscribe, and in addition to this it was also empowered to construct a station of its own in the City or to lease part of the terminus from the North London. Thus it will be seen that the session of 1861 promised to supply a great want of the North-Western, *i.e.* direct access to the City for both passengers and goods.

We have already seen that at the beginning of the year 1861 the Marquis of Chandos was succeeded in the chair by Admiral Moorsom, but the year witnessed yet another change of chairman, for Admiral Moorsom, after only occupying the position for a few months, died, and to fill the vacancy Mr. Richard Moon was appointed. The gross receipts for the first half of the year were £2,179,494, and for the second half they were £2,299,920, an increase for the first half, but a slight decrease for the second half; however, owing to the large increase in the working expenditure, £1,004,172 and £1,189,566, as compared to

£869,619 and £974,310 respectively for the previous half-year, the dividend on the ordinary stock showed a decrease, being at the rate of $4\frac{1}{4}$ per cent., as compared with $5\frac{1}{8}$ per cent. for the preceding year.

During the following year, 1862, several important extensions were opened for traffic, chief of which was perhaps the Bedford and Cambridge Railway, which was opened throughout from Bedford to Cambridge, while the first section of the South Leicestershire was opened from Nuneaton to Hinckley, a distance of about four miles, and the line from Aston to Sutton Coldfield was brought into use. The Watford and Rickmansworth Railway was also opened for traffic this year; this latter was an independent railway, of which Lord Ebury was the chief proprietor, and from its opening it was worked as an integral part of the North-Western system.

In addition to these extensions the North-Western carried out several absorptions during the year. By Act of Parliament passed in 1862 the North-Western entered into a lease of the undertaking of the Cromford and High Peak Railway at a rental of £3,500 for the first year, and a subsequent rental of £4,000 per annum. The Cromford and High Peak ran from the High Peak Canal at Whaley Bridge to the Cromford Canal at Cromford, and was chiefly remarkable for the severity of its gradients, some of which were worked by stationary engines. During this year the North-Western entered into a joint arrangement with the Manchester, Sheffield and Lincolnshire, and took over the Oldham, Ashton and Guide Bridge Railway. The latter was a line which had been incorporated in 1857, and to which the North-Western and Sheffield Companies had each been empowered to subscribe £50,000. The North-Western and Sheffield Companies now came forward and



**MAP OF THE LONDON AND NORTH-WESTERN RAILWAY,
BETWEEN LIVERPOOL AND LEEDS.**

guaranteed a dividend of $4\frac{3}{4}$ per cent. on the remaining part of the capital. The Oldham, Ashton and Guide Bridge was an important line of some six miles, running through a busy manufacturing district, whose position is sufficiently clearly indicated by its title.

An incident occurred during this year which served to show the great improvements made in locomotive science, and which also called public attention to the great usefulness of the water pick-up apparatus which had then been recently invented by Mr. Ramsbottom, the Northern District locomotive superintendent, to enable locomotives to replenish their supply of water without stopping. At this time civil war was raging in America and British sympathy inclined towards the Southern Confederate States. The Confederate Government accordingly arranged to send representatives to Europe to try to obtain official recognition of the independence of the Southern States. Mr. Slidell, a noted politician and lawyer, was selected to proceed to Paris to plead the cause before the Emperor Napoleon, while Mr. J. N. Mason, famous as the originator of the notorious Fugitive Slave Law, was chosen to represent the Southern States in London. The two delegates succeeded in making their way safely to Havana, where they embarked upon the British Mail Steamer *Trent*. About two hundred and fifty miles out from Havana, however, the *Trent* encountered the United States war ship *San Jacinto*, which had learned of the presence on board the *Trent* of the Confederate delegates. A shot was fired from the *San Jacinto*, and an armed party was sent on board the *Trent*, who immediately proceeded to seize forcibly the Confederate delegates from under the protection of the British Flag, and to carry them away to New York. Such a proceeding was indisputably illegal and in direct

contravention of all international laws. The matter was immediately taken up by the British Government and negotiations for the release of the delegates were opened between the two Governments. Feeling waged high over the matter and for a time peace trembled in the balance. The British Government sent a despatch to the Federal Government, which practically amounted to an ultimatum, and intense excitement prevailed whilst awaiting the Federal reply which would decide the issue of peace and war. It must be mentioned that these were the times before the days of Atlantic cables, and the quickest means of communication was by rail *via* Holyhead to Queenstown; accordingly, whilst awaiting the arrival of the momentous despatch, the London and North-Western Railway kept an engine in steam at Holyhead night and day ready at a moment's notice to whirl the expected despatch up to the capital. From the 2nd to the 9th of January it waited in readiness at Holyhead, at length, on the 9th, the fateful despatch arrived and the last section of its long journey was commenced. The distance from Holyhead to Euston was, and still is, 264 miles, and the journey was accomplished in the remarkably short time of five hours, with one stop at Stafford for the purpose of changing locomotives. The average speed of the whole journey was about $52\frac{3}{4}$ miles per hour, while the $130\frac{1}{2}$ miles between Holyhead and Stafford were covered in 145 minutes, a speed of 54 miles per hour. Mr. Ramsbottom's pick-up water troughs largely helped to make this feat possible, as they did away with several stops which would previously have been necessary for the purpose of replenishing the water supply. The whole performance was unquestionably a most remarkable one, especially when one considers that at this time forty miles per hour was considered an exceptionally fast

average rate for an express train. It is pleasing to add, though hardly necessary as most people are aware of the fact, that the despatches were satisfactory, that Slidell and Mason were released, and that peace was preserved between the two great English-speaking nations.

Mention has not been made for some time past of the Great Western Railway, but it must not be thought that competition between the North-Western and Great Western had flickered out since the great "battle of the gauges." On the contrary, competition had increased, and each company watched the other's every move with a jealous eye, fearful lest its rival should steal a march upon it. A veritable war was waging between the two railways for supremacy in the West Midland and Welsh Border district, each being anxious to obtain control of the district and to keep the other out. A previous encounter for the possession of the district between Chester and Birkenhead, as we have previously seen, had been satisfactorily settled by the two railways jointly taking over the Birkenhead Railway, which ran through the district. The district now in dispute, which was receiving the attentions of both companies, was that between Hereford and Shrewsbury, through which ran the independent Shrewsbury and Hereford Railway. And again the question was satisfactorily settled by a proposal for joint control, and by Act of Parliament passed in 1862 the Shrewsbury and Hereford Railway was leased jointly by the London and North-Western and Great Western Railways. The North-Western, previous to the lease, was already in a strong position in Shrewsbury, for it controlled the Shropshire Union line running into Shrewsbury from Stafford for traffic from the south, whilst it also possessed a line running into Shrewsbury from Crewe for traffic from the north. This latter,

which had been opened in 1858, was a single line, but in view of the increased traffic which the new arrangement was expected to send over it, it was converted into a double line during the year. The Shrewsbury and Hereford Railway was such an important concern that it deserves more than a mere passing reference, so we will proceed to tell briefly the story of its independent career. The proposal to construct a line through this district was made at a comparatively early date, and various proposals were made both for a narrow gauge and a broad gauge line. In 1846, however, the Shrewsbury and Hereford Railway, which was a narrow gauge scheme, was sanctioned by Parliament. The Bill provided for a line between the two towns, some fifty miles in length, with a capital of £800,000. The Shrewsbury and Hereford was promoted at the time of the railway mania, and, unlike many of the projections of that time, it developed into a sound and successful concern. At the time of its promotion the neighbouring districts were thickly strewn with schemes for new lines, some sound, but others utterly worthless, and undoubtedly one of the chief reasons for the promotion of the Shrewsbury and Hereford Railway was the idea that, in conjunction with other lines either authorised or projected, it would eventually form a new trunk route between Manchester, Liverpool, and the North, and South Wales, Bristol, and the West of England. There is no doubt that the Great Western looked upon the Shrewsbury and Hereford with a jealous eye, as it had hoped to preserve the district for the broad gauge, while, on the other hand, the North-Western and other narrow gauge adherents were delighted at the prospect of the Shrewsbury and Hereford forming a narrow gauge route from the North to South Wales. The work of construction,

however, did not proceed, and the powers were allowed to lapse; but the line had come to be looked upon as a vital necessity for the district, and so, in 1850, the Parliamentary powers were revived. The original intention had been to construct the railway as a double line, but in order to cut down the expenses as much as possible it was now decided to make it a single line only. The contract for the construction of the railway was let to Mr. Brassey, the contract price for the fifty-one miles of single line, with the bridges and viaducts built for a double line, being £345,822. Mr. Brassey agreed to complete the first half of the line, that between Shrewsbury to Ludlow, during the first part of 1852, and he further agreed to lease the line when completed, and pay the shareholders $3\frac{1}{2}$ per cent. The construction of the line did not present many difficulties, as it was singularly free from any great engineering feats, the biggest, perhaps, being the tunnel at Dinmore Hill, on the Ludlow-Hereford section, and so Mr. Brassey was able to get the first part opened within the contract time, which event took place on 20th April, 1852, and on the 6th of November, 1853, amidst great local rejoicings, the Ludlow-Hereford section was opened, thus completing the through communication between Shrewsbury and Hereford. A fresh agreement was entered into with Mr. Brassey, by which it was arranged that he should continue to work the whole line, guaranteeing the shareholders a dividend on a sliding scale, commencing at 4 per cent. and rising to $4\frac{1}{2}$ per cent., with a quarter share of all surplus profits after the gross receipts exceeded £85,000 per annum. As most people know, Mr. Brassey was the greatest contractor of the day, and was consequently far too busy to attend himself to the working of the line which he had leased. Accordingly he looked around for a suitable

manager, and made the happy choice of George Findlay, then in his employ as engineer superintending the construction of the Shrewsbury and Hereford Railway. Thus, in 1850, at the early age of twenty-five years, Mr. George Findlay was appointed manager of the Shrewsbury and Hereford Railway, and forsaking engineering as a profession, commenced his new calling, which was destined later on to land him in the General Manager's chair at Euston. Mr. Findlay at once realised that, as a through trunk route, the Shrewsbury and Hereford Railway had immense possibilities, and in conjunction with Mr. Braithwaite Pool, the Goods Manager of the North-Western, soon set about arranging through rates for goods traffic between Manchester, Liverpool and other important parts of the North-Western system and South Wales. So successful were Mr. Findlay's efforts at developing the through traffic, that whereas the local traffic on the Shrewsbury and Ludlow portion for the first six months averaged in receipts about £15 per mile per week, the whole railway by 1862 was averaging about £45 per mile per week. It must have become fairly obvious towards the end of the 'fifties' that the Shrewsbury and Hereford would sooner or later become merged in either the North-Western or Great Western systems; of the two perhaps it was the more likely to be the North-Western, seeing that both it and the Shrewsbury and Hereford line were built on the narrow gauge principle. The directors of the Shrewsbury and Hereford knew that they were in a very strong position and were in no hurry to sell, for they realised that sooner or later the railway must be absorbed by either the North-Western or Great Western. After various negotiations it was arranged that the Shrewsbury and Hereford should be taken over jointly by the London and North-

Western on the one side and the Great Western and West Midland on the other side, the latter line being in close alliance with the Great Western, and shortly afterwards absorbed by it. The lease took effect on the 1st of July, 1862, and by the terms of the agreement the Shrewsbury and Hereford was guaranteed a dividend of 6 per cent. on its ordinary shares. The Shrewsbury and Hereford, at the time of its transfer, in addition to its original main line, possessed a branch (opened in 1859) from Ludlow to Clee Hill, whilst it had also obtained a lease of the Tenbury Railway, running from Wooferton to Tenbury. It was undoubtedly a great thing for the London and North-Western to secure control, although only joint control, of the Shrewsbury and Hereford Railway, for it opened up an immense new district to the North-Western, and secured for the latter access to many important places in the West Midland counties and South Wales.

One of the chief 'assets' which the North-Western took over with the Shrewsbury and Hereford was George Findlay, destined in later years, as we have already said, to become General Manager of the North-Western. On the lease of the Shrewsbury and Hereford to the North-Western and Great Western, George Findlay was appointed District Manager for the London and North-Western in Shropshire and South Wales. George Findlay's task was by no means an easy one, for although the London and North-Western and Great Western were united in the joint lease of the Shrewsbury and Hereford line, a veritable campaign was raging between them for supremacy in Wales and along the Welsh borders. Both of the great lines were trying to bring into their own sphere of influence the unattached Welsh lines which abounded up and down the country. In pursuance of this policy the North-Western had in

1861 carried an intimate agreement with the Oswestry and Newtown.

This line was leased by Mr. Savin, the contractor, who also leased most of the other lines in the district, now forming the Cambrian Railways. Mr. Savin, being in need of a manager, approached Mr. Findlay, with a view to the latter's managing his railways. The result of this was that Mr. Findlay, with the full approval of the North-Western Board, who, naturally, were not at all averse to cultivating intimate relations with these desirable Welsh Railways, assumed the double position of District Manager to the London and North-Western and Manager of most of the Independent lines, which in 1864 were amalgamated as the Cambrian Railways, and also of several other lines, including the Hereford, Hay and Brecon Railway, and the Brecon and Merthyr Railway. This arrangement soon bore fruit, for in 1864 a most intimate agreement was effected between the London and North-Western and the Cambrian Railways, by which it was arranged that the North-Western should have running powers over the lines of the Oswestry and Newtown, the Llanidloes and Newtown, and the Oswestry, Ellesmere and Whitchurch railways, the North-Western giving "a rebate of 50 per cent. from the mileage receipts of the North-Western upon all traffic (except minerals) sent from the lines of the Welsh companies to the lines of the North-Western, when the lines of the Welsh companies and North-Western form the shortest route." By the terms of the agreement it was arranged that the sum obtained from the rebate should first of all go to pay certain expenses and preference charges, then to pay a dividend on the ordinary stock at the same rate as that distributed on the London and North-Western ordinary stock, and after that the balance should go to the North-Western. The agreement was

signed for a period of 99 years, after which it was terminable on four years' notice being given by either side. It is interesting to note in passing that the rebate question afterwards became a matter of dispute between the two companies, but in 1878 all questions in dispute between the two companies were amicably settled. Mr. Findlay did not long remain in the dual position of district manager of the North-Western and manager of some of the independent Welsh lines, for his

NORTH WALES EXPRESS ABOUT TO LEAVE EUSTON.

manifest abilities were soon recognised at headquarters, and at the beginning of 1865 he was called to Euston to take up the responsible position of General Goods Manager of the London and North-Western Railway.

That the London and North-Western did not intend to stop at Hereford, the southern terminus of the Shrewsbury and Hereford line, was soon shown by the fact that even before it had taken possession of the latter it was arranging for

extensions beyond the latter southern terminus, in a district then looked upon as belonging to the Great Western. Still, the Great Western had no just cause for complaint, for it had extended northwards, past Birmingham and Shrewsbury, to Chester and Birkenhead, districts which were at the time regarded as legitimately belonging to the North-Western; so that now the North-Western was only taking a hand at the same game.

To the south-westward beyond Hereford is situated the great industrial and colliery district of South Wales, and it was into this rich district that the North-Western naturally wished to extend. Accordingly, with a view to obtaining a share of the traffic of this district, in 1862 the London and North-Western took over on a lease for a thousand years the Merthyr, Tredegar and Abergavenny Railway, the first section of which—that from Abergavenny to Brynmawr—was opened during the year. By the terms of the Act the North-Western guaranteed 5 per cent. on the capital of the Merthyr, Tredegar and Abergavenny, while special facilities over the line were granted by the Act to the Great Western. During the year there were rumours of an amalgamation of the North Staffordshire Railway with the London and North-Western. The *Staffordshire Sentinel*, in discussing the question at the time, states: "There have been rumours as to a sale, or lease, of the North Stafford Railway to the London and North-Western Railway. It is certain that of late frequent interviews have taken place between the representatives of the two companies, and it is understood that as a result certain arrangements have been arrived at. Whether the arrangements will ultimately take the form of a lease or amalgamation remains to be seen, but at present, so far as our information goes, nothing more is contemplated than combined action

next session with regard to competing lines which may be brought forward, and, in the meantime, some modification of the present arrangements with regard to through traffic, which will promote economy, cement more closely the relations of the two companies, and, at the same time, tend to the convenience of the travelling and commercial community. One very important result of the new arrangements—the reduction of the rates of carriage—has already appeared.” But the rumour as to the amalgamation ended in nothing. Rumours of the absorption of the North Staffordshire by the London and North-Western have often been circulated, but the North Stafford has always managed to maintain its independence. Had the amalgamation, however, been carried out at some time, there can be little doubt that it would have paid the North-Western, and paid it handsomely. We have previously seen how, in 1857, the Great Northern joined hands with the Manchester, Sheffield and Lincolnshire and formed a second route between London and Lancashire, thus inaugurating an era of competition; and now, in the session of 1863, the Midland presented a Bill to Parliament for a line from near Buxton to New Mills, which, if authorised, would complete a third route between London and Lancashire. This was undoubtedly a severe blow for the North-Western, as it meant that the latter would have to face greatly increased competition, though it must be confessed that this move on the part of the Midland was not altogether unexpected, as it had been fairly obvious all the time the Midland Railway had been drawing on towards Buxton that Manchester was the real goal aimed at. The London and North-Western was naturally averse to the construction of the line, but, realising that the Midland was determined to reach Manchester, the former company offered the Midland a compromise,

whereby the Midland should have full facilities and contingent running powers into Manchester over the North-Western's Buxton-Disley-Stockport line, thereby saving the expense of constructing a parallel line through a district in which there was comparatively little local traffic. Most impartial persons would imagine that this was a very excellent and reasonable proposition, but the Midland board apparently thought different, and declined to entertain the proposal. The London and North-Western thereupon decided to oppose the Manchester Extension Bill tooth and nail, and in this it had the support of the Great Northern. The Bill in due course came before Parliament, and masses of evidence were taken, which we have not the space to go into; but there is one incident which we feel we must chronicle. This was some well-merited praise of the enterprise of the London and North-Western, though not meant as praise, which came from the mouth of an opposing counsel when the Bill was before the House of Lords' Committee. Mr. Hope Scott, the counsel for the North-Western, in his opposition to the Bill remarked that the Midland should confine its energies to the Midlands, and that it was not the destiny of the Midland Railway to extend to Manchester. "My learned friend," retorted Sir W. Alexander, the Midland's counsel, "was tempted to indulge in a somewhat hyperbolical phrase when he said that it was not the destiny of the Midland Company to go to London or to Manchester. It was rather a strange term to use. Destiny! Was it the destiny of the London and North-Western Railway Company, which was originally a line to Birmingham and Liverpool, to join the Caledonian? Was it their destiny to seek a line to West Hartlepool? Was it their destiny to seek, as they were doing a few days ago, a line to Merthyr Tydfil? Yes,

that they are doing. Was it their destiny to seek a line to Cambridge, the very headquarters of the Eastern Counties territory, which they did when they obtained the line from Cambridge to Bedford?" However, whether it was their destiny, or whether it was not their destiny, and in spite of the opposition of both the London and North-Western and Great Northern Railways, the Midland's Extension to Manchester Bill was successful in passing through both Houses of Parliament, and so a third trunk route to Lancashire became authorised, which promised in the not distant future to increase greatly the already keen competition.

Turning from what we may call foreign affairs to the home affairs of the North-Western Company, we find that in 1862 the first steel rail was laid on the North-Western at Chalk Farm. Previous to this the rails were made of iron, and it is on record that the iron rails surrounding the initial steel one at Chalk Farm were renewed seven times before the steel one had to be replaced. Steel rails were found to be much more homogeneous and to wear more evenly than iron ones, though in certain atmospheres they were found to corrode more easily; however, they were immediately recognised to be infinitely superior to the iron ones and their adoption has since become general, not only on the London and North-Western, but on all the chief railways. The North-Western Bill passed in 1862 was not a very important affair, providing for the construction of short branches, of a total length of a little over two miles, and authorising the raising of further capital to the extent of £180,000, with loans amounting to another £60,000. The gross receipts for the year 1862 amounted to £4,617,597, while the expenses were £2,345,212. The dividend on the ordinary stock showed a slight increase over that for the previous year, being at the rate of $4\frac{5}{8}$

per cent. per annum as compared to $4\frac{1}{4}$ per cent. for the year before. During the year Mr. J. E. McConnell, the locomotive superintendent of the Southern Division, resigned. By this time the Board had come to the conclusion that the principle of two locomotive superintendents, with the necessary duplicate erecting and repairing plants, was a far from economical and satisfactory plan. Accordingly it was decided that, while the plant at Wolverton should still be kept going, in the future there should only be one locomotive superintendent for the whole London and North-Western system, with headquarters at Crewe; and in pursuance of this new policy Mr. John Ramsbottom, then locomotive superintendent for the Northern Division, was appointed mechanical engineer and locomotive superintendent for the whole system. We will here take the opportunity of referring to some of the locomotives built by Mr. McConnell for the London and North-Western, though it must first be stated that this work does not pretend to be a locomotive history of the London and North-Western Railway. In 1846 Mr. James Edward McConnell was appointed locomotive superintendent of the Southern Division in succession to Mr. Edward Bury, who had been locomotive superintendent of the London and Birmingham Railway; previous to this he had been locomotive superintendent of the Birmingham and Gloucester Railway, where he had made a big reputation in designing engines to work the 'Lickey Incline,' one of the severest gradients in the country. On taking up his position at Wolverton he found that the locomotive stock consisted almost entirely of small four-wheeled 'Bury' engines, and so he soon set about introducing a heavier type of six-wheeled engine. Undoubtedly Mr. McConnell's *magnum opus* was the 'Bloomer' type of locomotive, and it is as the designer of the 'Bloomer' type that

Mr. McConnell's name will be handed down to posterity. What ill-chance saddled these engines with such an uneuphonious name it is hard to say, seeing that none of them was ever named 'Bloomer.' There were two types of 'Bloomers,' the 'Large Bloomers,' and 'the Small Bloomers.' The first of these to make their appearance were the 'Large Bloomers,' the first batch of which, built by Messrs. Sharp Brothers & Company, of Manchester, were delivered during 1851. These 'Large Bloomers' were six-wheeled locomotives, with a single pair of driving wheels 7 feet in diameter, and weighing nearly 29 tons. A few other particulars of these engines are as follows:—Length of boiler barrel 11 ft. 9 in., diameter of boiler barrel 4 ft. 1 in., number of tubes 195, working pressure 150 lbs. per square inch. The 'Large Bloomers' were very successful, and several more batches were built at Wolverton, and by Messrs. Sharp, Stewart & Co., and Kitson & Co.

The first of the 'Small Bloomers,' which were virtually the same as the 'Large Bloomers,' only with smaller dimensions, were built in 1854 by R. & W. Hawthorn and the Vulcan Foundry. The driving wheels of the 'Small Bloomers' were 6 ft. 6 in. as against 7 feet in the 'Large Bloomers,' while the diameter of the cylinders was 15 inches, and the stroke of the piston 21 inches, as compared to 16 inches and 22 inches respectively in the larger class. The 'Small Bloomers' were also very successful, and a number more were afterwards built at Wolverton.

Prior to his retirement, Mr. McConnell, in 1861, brought out a new class of engine in order to meet the demand for increased locomotive power which was even then beginning to be felt. This class of engine, of which only three were built at Wolverton (Nos. 372, 373 and 375), was of much the same type as the 'Large Bloomers,' but still

larger in dimensions. These three engines were six-wheeled, with a single driving wheel. The following are a few of their chief dimensions: Diameter of driving wheel 7 ft. 6 in., diameter of cylinders 18 inches, stroke of piston 24 inches, number of tubes 214, heating surface 1,222·8 square feet, steam pressure 150 lbs. per square inch, while the total weight of engine and tender in working order was just under 60 tons. One of these engines, No. 373, afterwards named *Caithness*, was

Photo] NO. 6 PLATFORM, PRESTON STATION. (*Mr. H. Gordon Tidy.*

sent to the International Exhibition held at London in 1862, where it was very favourably commented upon.

Although the foregoing are, perhaps, the chief types of engines designed by Mr. McConnell during his reign at Wolverton, it must not be imagined that they were the only ones, for in addition to the above he designed a very useful type of tank engine, and also an excellent lot of six-wheel coupled goods engines, which for years

continued satisfactorily to work a part of the goods traffic of the line. Mr. McConnell was undoubtedly a great pioneer, and was one of the first locomotive designers to adopt a high-set boiler, at a time when, it should be remembered, most locomotive designers considered it was necessary to have a very low centre of gravity in order to ensure safety and stability when running at high speeds. All Mr. McConnell's engines were built with a comparatively high-set boiler, and his ideas on this subject have since been proved to be absolutely right. Another subject on which Mr. McConnell's ideas have since been proved to be right was the subject of burning coal by locomotives; in the early days, as most people are aware, coke was almost exclusively used, and McConnell was one of the pioneers in the introduction of coal instead of coke. He experimented on this subject and introduced a fire-box and combustion chamber of his own invention, specially designed for the burning of coal. As we have previously stated, Mr. James Edward McConnell resigned in 1862, and from that date onwards the whole of the London and North-Western Railway system was placed under the charge of one locomotive superintendent, with headquarters at Crewe, and from that date Wolverton, although the work in progress there was completed, ceased to undertake any new work, and became a repairing station.

The year 1863 was not a very eventful one. Perhaps the most important opening during the year was that of the West London Extension Railway, a joint affair, owned in the proportion of one-third each by the London and North-Western and the Great Western, and one-sixth each by the London, Brighton and South Coast and the London and South-Western Railways. This line stretched from the West London (which

as we have already seen was leased by the London and North-Western and Great Western) at Kensington across the Thames to Clapham Junction, where it made connection with the lines of the two junior partners. By the opening of the West London Extension Railway, the London and North-Western Railway secured direct access to many important parts situated in the South of London, and also obtained a new route for traffic, and more especially goods traffic between the North and South of England.

During the year an extension of the Birkenhead Railway (joint Great Western and North-Western) was opened from Hooton to Helsby, a distance of 9 miles. In 1863 an Act of Parliament was passed which empowered the London and North-Western and the Stockton and Darlington Railways (which as most people know, was afterwards absorbed into the North-Eastern system) each to subscribe £25,000 to the Cockermouth, Keswick and Penrith Railway, and to enter into agreements for working the line. The Cockermouth, Keswick and Penrith Railway had been authorised in 1861 to construct a line from Penrith on the London and North-Western and the Stockton and Darlington Railways through Keswick and the Northern end of the Lake District to a junction with the Cockermouth and Workington Railway at Cockermouth, whence to the Cumberland Coast, the latter line completed the communication. Parliamentary sanction having thus been obtained for a working agreement, the London and North-Western and Stockton and Darlington afterwards entered into an agreement with the Cockermouth, Keswick and Penrith railway, to work the line in return for $33\frac{1}{3}$ per cent. of the receipts for passengers and goods, and for 35 per cent. of the mineral receipts. This was undoubtedly a good move on the part of the London and North-Western Railway, as it

considerably strengthened the Company's position in this part of the country.

We have now got to record some events in connection with the Company's steamboat services from Holyhead. We have previously recorded the fact that as early as 1848 the Chester and Holyhead Railway possessed a fleet of steamboats, the *Anglia*, *Scotia*, *Hibernia* and *Cambria*, and was working a service between Holyhead and Kingston with these boats in 1858, when the London and North-Western Railway absorbed the Chester and Holyhead Railway and took over with it the latter's steamboats and continued to work the services. Unfortunately, for the London and North-Western Railway, however, the contract for the carriage of the mails between Holyhead and Kingstown was obtained by the City of Dublin Steampacket Company, and in 1860 the latter placed on the service four new boats, the *Ulster*, *Munster*, *Leinster* and *Connaught*, each with a tonnage of 2,000 and a speed of 16 knots, and this service, while improving the general service to Ireland, was naturally found to compete with the London and North-Western boats. The North-Western accordingly determined to start a new service and in 1863, having obtained a new fleet of steamers, it inaugurated a new service between Holyhead and North Wall, Dublin, which, while chiefly catering for the enormous goods traffic between the two countries, provided a certain amount of passenger accommodation. The names of the new boats were *Admiral Moorson*, *Alexandra*, *Countess of Erne*, *Duchess of Sutherland*, *Duke of Sutherland*, *Edith*, *Sea Nymph*, *Stanley* and *Telegraph*. The new service provided for the sailing of two boats each way daily, and was from the first a great success.

In addition to the above North Wall steamship service, several important railway services were

inaugurated during the year 1863. In April the London and North-Western commenced to run trains over the Lancashire and Yorkshire Railway from a junction between the two systems near Huddersfield to Normanton, an important junction in the West Riding, where the lines of the Lancashire and Yorkshire, Midland and North-Eastern Railways met; and the introduction of this service opened up several important cross-country connections. Another service inaugurated during the year was that between Euston and Kensington, which was started in May and traversed many miles in the suburbs between the two termini. At this period there was very little effort made to encourage a suburban traffic, indeed there were very few stations from which to encourage it, while the terminus at Euston would have been quite unable to accommodate it; as it was, to modern ideas, a very modest building, consisting of one arrival and two departure platforms. The London and North-Western obtained several Acts of Parliament during the year, which provided, *inter alia*, for the raising of £50,000 for the Preston and Wyre and North Union Railways, for branches of a length of $10\frac{1}{2}$ miles in Cheshire, for the abandonment of part of the Chelford and Knutsford, for new lines in Yorkshire to the extent of $4\frac{1}{2}$ miles, and for the confirmation of various agreements, including an agreement with regard to Chester Joint Station. Altogether, for the purposes of these acts, power was obtained to raise new capital and loans to the extent of considerably over £300,000.

For both halves of the year 1863 the gross receipts showed a gratifying increase, the receipts for the half-year being £2,301,757 and £2,677,408 respectively, and although the expenditure also showed an increase, the rate of distribution on the ordinary stock was increased, being at the rate of $5\frac{1}{8}$ per cent., an increase of $\frac{1}{2}$ per cent.

While the financial affairs of the company were thus in such a satisfactory condition a new spectre of competition had arisen, and an event had taken place during the year which could not help but adversely affect the North-Western's balance sheet in the future. This was the authorising by Parliament of a Midland Extension to London. The Midland Railway, as we know, was originally formed by the amalgamation of three lines in the Midland Counties and was dependent on a junction with the North-Western at Rugby for its communication with the Metropolis; afterwards, on the construction of the Great Northern Railway, it had constructed a line from Leicester through Bedford to a junction with the Great Northern at Hitchin, and thus had obtained an alternative route to the Metropolis. Ever since the construction of the latter line it had become apparent to many people that the Midland, after having stretched its lines to within a comparatively short distance of London, would not long be content to remain in that position, but that in the natural course of events a direct invasion of the Metropolis was bound to follow. Therefore, under these circumstances, the promotion of an extension to London Bill by the Midland, in 1862, did not come as a great surprise to the London and North-Western. It must be admitted by all impartial persons that, although the proposed line would inevitably inflict severe loss on the North-Western and Great Northern Companies, yet, nevertheless, the Midland had undoubtedly a strong case for its promotion. The North-Western and Great Northern did what they could to accommodate the Midland's London traffic, but it must be remembered that they had a fast-growing traffic of their own, and quite naturally their own traffic was given the preference, and this led to the Midlands traffic frequently being delayed. In order to remedy this state of

affairs the North-Western opened a third line between Willesden and Bletchley, largely for the accommodation of the Midland traffic; but even this did not put matters right. It is recorded, though we will not vouch for the accuracy of the statement, that on one occasion the North-Western was so blocked with traffic that it was forced to give notice to the Midland that it could not for some time take on any coal traffic from Rugby, and that in consequence 'five miles' of coal trains accumulated at Rugby waiting for conveyance to London. On the Great Northern, between Hitchin and London, things were quite as bad and delays as frequent. During the year 1862 the Midland paid the North-Western £193,000 for traffic by Rugby, whilst it also paid the Great Northern £60,000 in tolls for the use of the line between Hitchin and London. It was under these circumstances that the Midland directors promoted a line to London, and most people will feel bound to admit that they were right in their decision. The Bill was not opposed by the London and North-Western but met with strong opposition from the Great Northern, but in spite of all opposition successfully passed through Parliament in 1863. Thus a third trunk line to the north became authorised. The rule of free competition between railways was now definitely laid down, and the North-Western, in addition to losing a traffic amounting to nearly £200,000 per annum, had now to look forward to a time in the near future when the Midland Railway would become a most serious competitor in most of the large towns of the Midlands and the North.

CHAPTER X.

1864—1867.

"THE AMALGAMATION YEARS."

The 'middle sixties' was an epoch-making period in British Railway History, for during this year an immense number of amalgamations and absorptions took place, indeed in some parts of the country railway geography was entirely revolutionised, the reason for this is not very far to seek. By this time the chief trunk lines had become thoroughly established, and having got their systems into more or less effective working order they were now able to turn their attention to the development of less pressing matters. While the great lines were in an early and developing stage, their directors were naturally averse to add to their heavy capital liabilities by constructing branch lines, the success of which could only be problematical, and so it had come about that independent lines had been constructed all over the kingdom. Many of these lines had already been absorbed in the large systems, while many more still abounded. Some of these railways had been promoted solely in the interests of the districts through which they ran, others had been promoted with the express intention of being sold to the company who would pay the highest price; some had ended in an ignominious financial crash, while others had prospered exceedingly. However, the natural destiny of most of these lines was to be merged into one or other of the great systems, and the 'sixties' witnessed the carrying out of a large part of this process.

Perhaps the most important event which occurred during 1864 was the absorption of the St. Helens Railway, for by Act of Parliament of the 29th of July the St. Helens Railway became vested in the London and North-Western. The St. Helens Railway was originally formed in 1845 by the amalgamation of the Sankey Brook Navigation and the St. Helens and Runcorn Gap Railway, the latter of which had been incorporated as far back as 1830. After the amalgamation the St. Helens Railway started to expand and extensions were made to Warrington and to Garston, and parliamentary powers obtained to construct docks at the latter place; in addition to this, powers were also obtained to construct branches to Eccleston and to Rainford. In 1859 the London and North-Western was authorised to construct a line from Edge Hill to Garston, there linking up with the St. Helens Railway, and completing, in conjunction with the lines of the latter and the Warrington and Stockport Railway, a new direct route between Liverpool and Manchester; and, as has been previously recorded, by Act of Parliament, June 14th, 1860, the London and North-Western leased from the St. Helens Railway, at a rental of £12,000 per annum, that portion of the latter railway which stretched between Garston and Warrington. With this curious relationship existing between the two companies, it is not at all surprising that this lease of part of the St. Helens Railway to the North-Western Company should be followed by a complete absorption of the former by the latter Company, which event, as before stated, took place in 1864. By the term of the agreement the North-Western guaranteed a dividend on the ordinary stock of the St. Helens Company at the rate of 4 per cent. for 1865, $4\frac{1}{2}$ per cent. for 1866

and afterwards at the rate of 5 per cent. The price paid for the line was a reasonable one, when one considers that the line communicated with several important places and that the district through which it ran was fast developing. The control of the line was essential for the development of the North-Western in this part of the country; had the latter not obtained control, it is quite possible that the St. Helens Railway would eventually have fallen into the hands of the Great Northern and Manchester, Sheffield and Lincolnshire Companies, which had obtained, by agreement with the North-Western, running powers over this route into Liverpool.

Several important extensions were opened for traffic during the year; perhaps the most important of these was the completion of the South Leicestershire line from Hinckley to Wigston, a station on the Midland Railway near Leicester, into which place running powers were obtained over the Midland. Thus the London and North-Western obtained access to the important and populous town of Leicester, and became a competitor in a place that had always been the monopoly of the Midland Company.

Another important place to which the North-Western secured access during the year was Morecambe, a rising seaside resort on the North Lancashire coast; a branch to this place was opened from Hest Bank, a station on the main line between Lancaster and Carnforth, and curiously enough, as in the case of Leicester, the North-Western made use of the Midland station there. The line connecting the North-Western at Edge Hill with the St. Helens Railway near Garston was opened for traffic during the year, while the Eccles, Tyldesley and Wigan line, together with the Leigh and Bedford branch were also brought into use. The Eccles, Tyldesley and Wigan line and

the Leigh and Bedford branch tapped a populous district studded with collieries, while the former of the two considerably shortened the distance between Manchester and all places North of Wigan. Even this does not exhaust the list of new openings which took place during the year, for a further portion of the Merthyr, Tredegar and Abergavenny Railway, which, as already recorded, had been leased to the North-Western in 1862 for a thousand years, was brought into use, extending from Bryn-

THE ELECTRIC SIGNAL CABIN, CREWE.

mawr to Nantybwich, and passing through the end of a district rich in collieries and ironworks. The usefulness of this line promised to be greatly increased, for in the session of 1864 the Rhymney Railway, one of the local coal railways of South Wales, obtained Parliamentary powers for an extension from Rhymney to a junction with the Merthyr, Tredegar and Abergavenny at Nantybwich, and as the Rhymney Railway had in the same session secured powers for the extension of its system to Cardiff,

these authorised lines promised, when constructed, to provide the North-Western with a new route *via* Nantybwlch between Cardiff and the North.

The North-Western's Act of Parliament obtained during the year sanctioned several agreements, and provided for the construction of several short lines and various junctions of a total length of $8\frac{1}{2}$ miles. The capital powers which were embodied in the Act provided for the raising of £265,000 new capital, together with a further £88,000 authorised to be raised on loan. Undoubtedly, one of the most interesting minor events which occurred on the North-Western during the year was the opening, at Crewe Works, of a plant for making Bessemer steel. From the first these works proved to be a great success, and have since been greatly enlarged at various times. For the year 1864 the gross receipts again showed a large increase, the total receipts being £5,588,405; and the dividend declared on the ordinary stock showed a corresponding increase, being at the rate of $6\frac{3}{8}$ per cent. for the year, as against $5\frac{1}{8}$ per cent. for the preceding year.

During the next year the London and North-Western carried out several important additions to and consolidations of its system. The Bedford and Cambridge Railway, whose name accurately describes the extent of its operations, and which we have previously referred to (at the time of its opening) as a subsidiary company of the North-Western's, became permanently merged in the North-Western with a perpetual guaranteed dividend of 4 per cent.

During this year the Shrewsbury and Welshpool Railway was jointly absorbed by the London and North-Western and Great Western Railways, thus adding some more mileage to the already large total in which the two companies were jointly interested. The Shrewsbury and Welshpool had

been authorised in 1836 to construct a line from Shrewsbury to a junction with the Oswestry and Newtown Railway at Welshpool, together with a branch from Hanwood to Minsterley. The length of the main line was about 16 miles, while the branch was about 5 miles. The line soon developed into an important factor, for it became the main route between Shrewsbury and a large part of the South and Midlands and the Cambrian system of railways.

Under these circumstances it is not at all surprising to find that the North-Western was anxious to gain possession of it. Accordingly, in 1864, an Act was passed authorising a lease to the North-Western, and in the following year the lease was converted into a joint one between the North-Western and Great Western, the price arranged being a guaranteed 4 per cent. on £300,000. Another line, which was the subject of joint arrangements carried out during the year, was the Lancashire Union Railway. The Lancashire Union was a railway authorised during the previous year (1864) to link together several important Lancashire towns by a series of lines connecting, amongst other places, Wigan, Hindley, Chorley and Blackburn. The total capital, including loans, was over £300,000, and of this total the London and North-Western subscribed £100,000, so it will be seen that although nominally independent, the line was for all practical purposes part of the North-Western. By the Act of 1865 the Lancashire Union was authorised to make an extension to St. Helens, and to raise new capital to the extent of over a quarter of a million; and during the year certain arrangements were carried out between the Lancashire Union and the Lancashire and Yorkshire Railways, by which certain portions of the former line were jointly vested in the two railways. A working agreement between the Lancashire Union and the North-Western was also

sanctioned by the Board of Trade during the year, by which the North-Western agreed to work the line and pay the Lancashire Union 5 per cent. on its capital.

During this year a very important amalgamation took place, which, although the North-Western was not directly concerned in it, nevertheless had a most important bearing on the affairs of that company. The company chiefly concerned was the North-Western's working partner, the Caledonian Railway, which by Act of July 5th, 1865, absorbed the Scottish Central Railway. The Scottish Central was incorporated as far back as 1845, and ran from Falkirk on the Edinburgh and Glasgow Railway and Castlecary on the Caledonian to Perth, and at the time of its amalgamation with the Caledonian, in addition to its original main line, it also included the undertakings of the Crieff Junction, the Dunblane, Doune and Callander, the Dundee and Perth, and the Dundee and Newtyle Railways. The amalgamation of the Scottish Central Railway with the Caledonian greatly strengthened the position of the Caledonian and North-Western Companies in Central and Northern Scotland and the Caledonian obtained an independent route of its own all the way to Perth. The rival East Coast Companies—the North British, North-Eastern and Great Northern Railways—naturally did not view with favour the prospect of the Caledonian controlling the route to Northern Scotland, and the latter accordingly opposed the Bill, but they were not successful in defeating the measure, although they obtained full facility clauses for their traffic. The amalgamation of the Scottish Central was undoubtedly an excellent thing for the Caledonian, and also for the North-Western, as it greatly strengthened the position of the West Coast allies in Central Scotland. The West Coast partners were at this date in infinitely the strongest position

in Scotland, for, while the rival East Coast Railways possessed an independent route to Edinburgh alone, the West Coast partners now possessed lines of their own to Edinburgh, Glasgow and Perth; while at Perth their rails connected with the rails of the Scottish North-Eastern Railway to Aberdeen and with the rails of the newly amalgamated Highland Railway to Inverness. At this date the great bulk of the Anglo-Scottish traffic unquestionably travelled along the lines of the West Coast Railways, and the two allies worked this traffic in the greatest possible harmony, providing a special stock of joint coaches for the purpose.

One or two important openings took place during the year; on the 2nd of January the line of the Cockermouth, Keswick and Penrith Railway was opened throughout for public traffic, for which railway it will be remembered the North-Western and Stockton and Darlington (which had in the meantime become merged in the North-Eastern) had undertaken to work the traffic. The Cockermouth, Keswick and Penrith commenced at Penrith on the North-Western main line, and opened up a large part of the northern end of the beautiful Lake district, whilst it also provided through communication to the Cumberland Coast. The most important opening, however, during the year, was undoubtedly the extension of the North London Railway into the City. The North London Railway, as has already been stated more than once, was a virtual dependency of the London and North-Western, and so the Extension was for all practical purposes a City extension of the North-Western. The new line was about two miles in length, and was an excessively costly line to construct, owing chiefly to the enormous price paid for the property through which it passed, the total expenditure being well over one and a-half millions sterling. Starting at Dalston, the new line ran

through a populous district to a terminus—Broad Street Station—situated in the heart of the City in Liverpool Street and near to the Bank. The new line was opened on the 31st of October, and the event was made the occasion of a ceremonial demonstration; the Lord Mayor of London and the Sheriffs attended the opening, and after having thoroughly inspected the new line, a sumptuous banquet was provided at Broad Street Station. The ‘Broad Street’ extension has been somewhat aptly christened the “Happy Afterthought,” and a ‘happy afterthought’ it undoubtedly was. The original intention of the North London was to connect the North-Western (or London and Birmingham, as it then was) with the docks, and it was only after the line was constructed that the ‘happy afterthought’ of a City extension appeared. It was unquestionably a most happy move, for the London and North-Western, by the extension, the latter obtained a direct route into the heart of the City of London and a splendid terminus there, part of which it built for its own use. The London and North-Western was now in a very strong strategic position for traffic in the Metropolis, for, in addition to its main terminus at Euston Square, it possessed, by means of its joint ownership of the West London and West London Extension Railways, a station in the West of London at Addison Road, Kensington, while by means of the newly constructed North London Extension it obtained access to a station in the City.

A very important new service of trains was inaugurated in July, 1865, linking up the London and North-Western Railway with the London Stations of the London and South-Western and the South-Eastern Railways. Commencing at Euston these trains ran *via* Kilburn to the West London Railway, over which they proceeded to Kensington and to the West London Extension

Railway, whence they continued through Chelsea and Battersea over the lines of the South-Western into Waterloo. Through Waterloo they proceeded by means of the junction there connecting the South-Western and South-Eastern Railways, and on over the rails of the latter into London Bridge Station. The importance of this service is obvious, for, in addition to serving the important districts of the Metropolis through which it ran, it directly connected the London terminus of the North-

SIGNAL GANTRY AT RUGBY.

Western with two of the most important railway systems of the South of England, which together served a very large part of the entire South of England.

Amongst the minor events which occurred during the year was the closing down of the carriage works at Saltley, near Birmingham. This was a corollary to the policy of placing the whole of the locomotive department of the system under one superintendent at Crewe, which, as we have

previously seen, had taken place when Crewe became *the* locomotive centre of the whole line, and Wolverton lost a lot of its former glory. It was accordingly decided chiefly to utilize the works at Wolverton for the manufacture of coaching stock, and in pursuance of this policy the carriage works at Saltley were dismantled and the machinery and plant were transferred to Wolverton. Wolverton thus became the carriage-building centre of the system, although for some time after this date locomotive repairs continued to be carried out there.

The North-Western obtained parliamentary powers for several minor works during the year for several short lines, of a total length of nearly 13 miles, and for various lines in Wales amounting to $23\frac{1}{2}$ miles. For these works and for various other purposes it was authorised to raise new capital, which, including loans, amounted to considerably over a million sterling. For the second half of the year the gross receipts for the first time exceeded three millions, the total receipts for the year amounting to £5,970,412. The dividend showed a satisfactory increase, being at the rate of $6\frac{5}{8}$ per cent., as compared to $6\frac{3}{8}$ for the preceding year.

The next year witnessed several important consolidations and additions to the North-Western system. One of the districts to receive the close attention of the North-Western Company during the year was the industrial district along the Cumberland Coast. Into the edge of this neighbourhood the North-Western already penetrated by means of the Cockermouth, Keswick and Penrith Railway, the traffic of which it will be recollected the North-Western was working; but beyond Cockermouth lay a district comparatively rich in coal, iron, stone, and ports at which to ship these commodities, and it was in this district that the

London and North-Western naturally enough wished to strengthen its position. In this district were several small independent lines, which fought among themselves for the traffic of the district, and the North-Western, having satisfactorily carried out negotiations for the absorption of two of them, was authorised by Act of Parliament of July 16th, 1866, to absorb the Cockermouth and Workington Railway and the Whitehaven Junction Railway. The former line was incorporated in 1845, and ran from Cockermouth, where it joined the Cockermouth, Keswick and Penrith Railway, to Workington Harbour, a total length of about $8\frac{1}{2}$ miles. The agreement by which the Cockermouth and Workington was vested in the North-Western, provided for an initial guaranteed dividend of 7 per cent., and rising yearly by one per cent. stages until it reached 10 per cent. in 1869. The Whitehaven Junction Railway, which had been incorporated as far back as 1844, ran from a junction with the Maryport and Carlisle Railway at Maryport, along the Cumberland Coast through Workington to Whitehaven, where a junction was effected with the Furness Railway (which about this time secured access to Whitehaven by absorbing the Whitehaven and Furness Junction Railway). The terms at which the North-Western took over the Whitehaven Junction were a guaranteed dividend of 10 per cent. By means of these purchases the North-Western was able to obtain a large share of the traffic of the district around the important places of Maryport, Whitehaven, Workington and Cockermouth; and by means of the Cockermouth, Keswick and Penrith Railway it now worked a through route between Penrith and the Cumberland Coast.

Another line which was transferred to the London and North-Western in 1866 was the

Stockport, Disley and Whaley Bridge Railway. The Stockport, Disley and Whaley Bridge had been incorporated in 1854 and was a subsidiary company of the London and North-Western; the North-Western was a large shareholder in it and had also subscribed largely to its 'Buxton Extension,' so that the change, though nominally an amalgamation, was really more in the nature of a consolidation. The terms of the absorption are shown by the following resolution which was passed by the North-Western: "That additional new capital, not exceeding £385,000, be created for the conversion of the shares of the Stockport, Disley and Whaley Bridge into an equivalent amount of stock of the London and North-Western, bearing a preferential dividend, without further participation of profits, at $4\frac{1}{2}$ per cent. per annum, payable half-yearly." Another consolidation of its system which the North-Western carried out during the year was the amalgamation of the Merthyr, Tredegar and Abergavenny Railway, a line in South Wales which the North-Western had leased in 1862 for a thousand years. By the agreement the North-Western took over the debenture and other liabilities and converted the shares of the Merthyr, Tredegar and Abergavenny Company into 5 per cent. preference stock. Turning from South Wales to North Wales we find that the North-Western was also busy in that quarter improving and strengthening its position. During the year the Anglesey Central Railway, a railway which had been incorporated in 1863 to construct a line of some 18 miles from Gaerwen on the Chester and Holyhead line to Amlwch on the north coast of the island, secured Parliamentary power to lease its undertaking to the London and North-Western. Another line in North Wales in which the North-Western became interested during the course of this year, was the

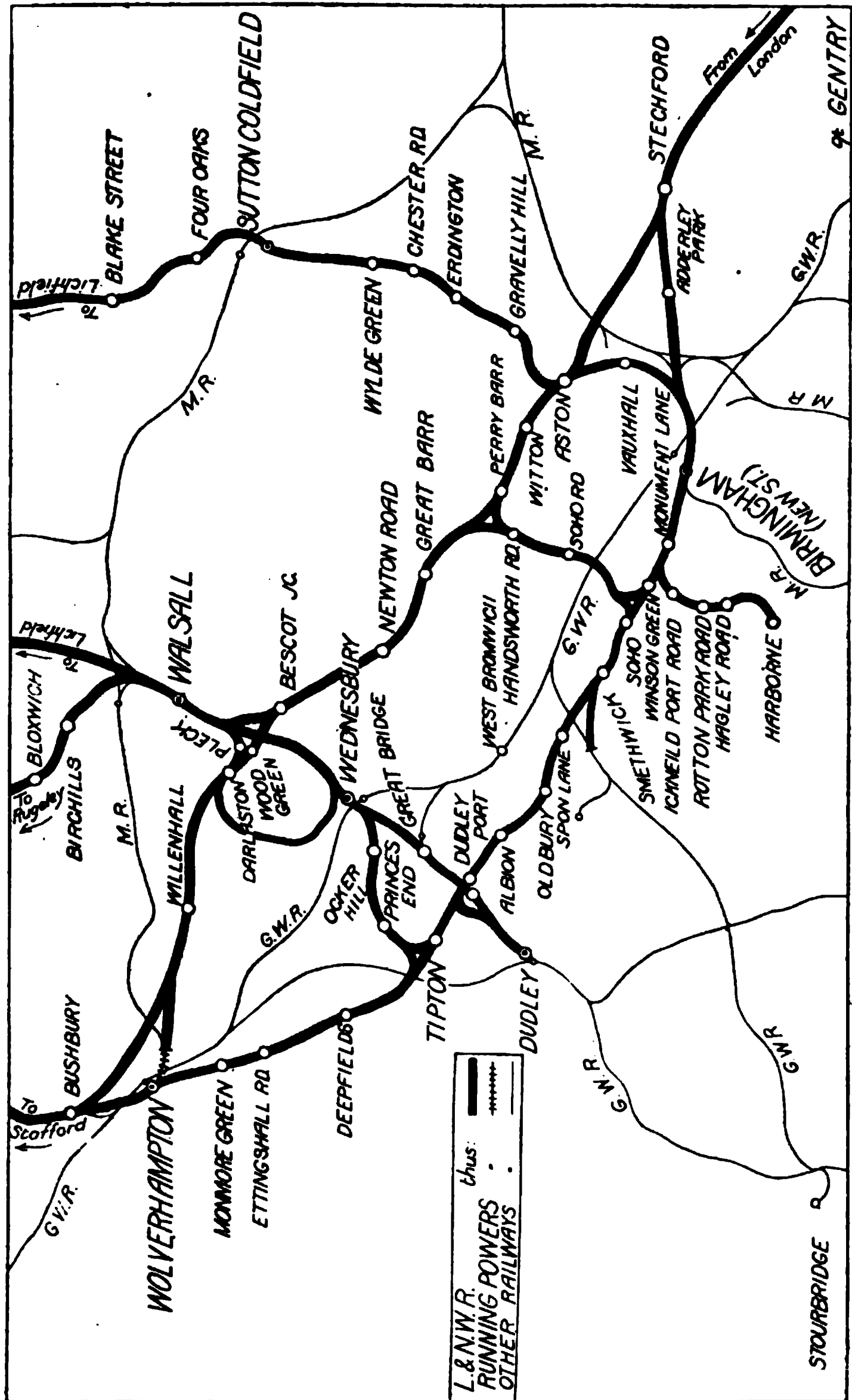
Wrexham and Minera Railway, a small line some 3 miles in length, which was jointly absorbed by the Great Western and London and North-Western. This was not the only joint arrangement carried out about this time between the London and North-Western and Great Western Railways, for another agreement was come to between the two Companies which promised to effect considerable savings in the accounts of both Companies. By this arrangement much overlapping and many duplicate trains on the joint lines were done away with, and a joint service took their place, while the services previously worked by both Companies in connection with the Shrewsbury and Hereford services between Hereford and Newport gave place to a new service planned to suit the needs of both Companies.

While the North-Western was thus busy consolidating its system in various parts of England and Wales, the North-Western's Scottish partner, the Caledonian, was also busy improving its own and the West Coast allies' position in the land beyond the border. We have seen how in 1865 the Caledonian absorbed the Scottish Central Railway, and thus obtained a line of its own to as far north as Perth, but not content with this, in the following year, the Caledonian secured Parliamentary sanction to amalgamate the Scottish North-Eastern Railway, and thus obtained sole control of the line the whole way between Carlisle and Aberdeen. The Scottish North-Eastern was an amalgamation of the Scottish Midland and the Aberdeen Railways, and in addition to its main line between Perth and Aberdeen it served Dundee and possessed several branches, some of which it had constructed itself, and some of which it had absorbed ready-made. As in the case of the amalgamation of the Scottish Central with the Caledonian, the East Coast Railways (Great

Northern and North-Eastern) opposed the Scottish North-Eastern Amalgamation Bill, and again, as in the case of the Scottish Central they succeeded in obtaining facilities over the line for their traffic. As some slight set-off to the Scottish Central and Scottish North-Eastern Railways becoming integral parts of the West Coast Route, in the session of 1865 the Edinburgh and Glasgow Railway became definitely merged in the North British, and although this considerably improved the position of the rival East Coast Route, there was no disputing the fact that as a route between England and Scotland the 'West Coast' was 'facile princeps.' The East Coast Companies, it must be confessed, were serious competitors in the case of Edinburgh, but to Glasgow their route was circuitous, while to reach Perth, Aberdeen and Northern and Central Scotland they were dependent on the lines of the West Coast Companies. A scheme, which, if it ever materialised, promised to put a different complexion on matters, had been brought forward in the interests of the East Coast Railways for the construction of bridges over the Great Firths of Forth and Tay, and the development of a route through Fife to Northern Scotland. But such a scheme at the best was extremely shadowy. In the meantime the West Coast was unquestionably the premier route between England and practically all parts of Scotland, to Edinburgh, Glasgow, Perth, Dundee and Aberdeen its own rails stretched, and along these rails the great bulk of the Anglo-Scottish traffic flowed.

Several openings took place during the year, perhaps the most important was that of the first section of the Central Wales Railway; as the Central Wales Railway will be fully dealt with in the next chapter, this passing reference will suffice for the present. The line between Stockport and

Northenden was also brought into use during the year, which provided a through route between Yorkshire and Stockport, and Warrington and Liverpool. Another extension opened during the year was that of the joint Great Western and North-Western Birkenhead Railway from Hooton to Parkgate, which took place on the 1st of October. During this year there was opened a station which has come to occupy a unique position in the working of the London and North-Western Railway as a traffic-distributing centre for the Metropolis, for during this year Willesden Junction Station was opened for traffic. It is true a Willesden Station had existed previous to this, but its situation was different to the present Willesden Junction. As far back as 1844 a station had existed at Willesden, but its location was about half a-mile to the north of its present site, and if that lying jade, Dame Rumour, is to be believed, its location was decided by the proximity of the spot to the residence of the then Manager, Captain Huish. Another station at Willesden, a little to the south of the present Willesden Junction, had also existed for the purpose of interchange of traffic with the West London. On the 1st of September, however, the old Willesden station was closed, and its place was taken by the new Willesden Junction station, situated five and a-half miles from Euston. Besides the Willesden Junction station for the main line, a high-level station was constructed on an overbridge above the former, in order to accommodate trains running on the Hampstead Junction and North and South-Western Junction lines, which here crossed the main line. By nature of its unique position and of the lines converging there from all parts, Willesden Junction immediately became one of the important stations of the North-Western, and its



THE LONDON AND NORTH-WESTERN RAILWAY IN THE BIRMINGHAM AND WOLVERHAMPTON DISTRICTS.

value seemed yearly to increase as time went on, until at the present time it shares with Crewe the honour of being the two largest junctions on the North-Western. On the opening of Willesden Junction, through bookings came into force between Broad Street station, the City terminus of the North London, and practically all stations on the North-Western system. In addition to being the junction for the City and the Docks *via* the North London Railway, Willesden was also the junction for the North and South-Western Junction line to Kew, Richmond, and the South-Western line, and also for the West London and West London Extension Railways to Kensington, Clapham, and the South-Western, London, Brighton, and South Coast, South-Eastern, and London, Chatham, and Dover lines. It will at once be seen what an important junction Willesden was, for here a passenger could reach many parts of the Metropolis, while for goods traffic it was the distributing centre for traffic for the whole of London and for goods consigned to the different railway systems south of the Thames.

This year witnessed a further piece of aggression on the part of the Midland Company. We have already seen how this Company was originally formed by an amalgamation of a series of lines in the heart of the Midland counties, and dependent on the London and North-Western (London and Birmingham) for its access to London. The Company, however, soon became dominated by a restless and aggressive policy of extension, having early in its history bought up the Birmingham and Bristol line, and thus secured an entrance into the West country; it afterwards, as we have already recorded, obtained powers for an invasion of the Metropolis, and also for extending its lines through the Peak District of Derbyshire to Manchester. Such schemes of extension might well have kept

a company legitimately employed for many years to come. But not so the Midland Company. This time the goal was Scotland, and again the attack, as in the case of the London and Manchester extensions, was chiefly aimed at the London and North-Western. The Midland was already carrying a certain amount of traffic between England and Scotland by means of the Ingleton-Lowgill branch of the North-Western, which connected the two systems in the North. Not content with this route, however, the Midland must needs bring forward plans for a new line from Settle to Carlisle, to be constructed at enormous expense practically parallel to the Lancaster and Carlisle line for a distance of over seventy miles, through a country almost devoid of habitations.

The North-Western did all in its power to stop the Midland from taking such a step; it offered the Midland running powers from Ingleton to Carlisle at arbitration rates, and as an alternative it offered to convert the line into joint ownership, each company paying half the rent and using the line as if it were its own. Such concessions would have satisfied most reasonable companies, but they failed to check the ambitions of the Midland. A Parliamentary fight was now inevitable. The Midland accordingly deposited a Bill for a Settle and Carlisle line, and the Bill came before Parliament in 1866. The Bill was strenuously opposed by the London and North-Western and also by the Caledonian Company, a large part of the opposition being based on the claim of the Midland Company to use the joint Citadel station of the North-Western and Caledonian Companies at Carlisle. However, despite the able advocacy of Mr. Hope Scott, the London and North-Western was unsuccessful in its object, and the Midland Settle and Carlisle Bill successfully passed through Parliament. Thus a

third great trunk route between England and Scotland became authorised, and with it came the prospect of increased competition in the future. The Settle and Carlisle Bill was not the only measure which excited controversy between the North-Western and Midland in Parliament, for in the same session the Midland proposed a line from Ashby-de-la-Zouch to Nuneaton, and a line under North-Western auspices, which proposed to cover much the same ground, also came before Parliament. Eventually, however, the North-Western, unlike the Midland in the case of the Settle and Carlisle, accepted a compromise, whereby it was arranged that the North-Western scheme should be withdrawn and the Midland Ashby-Nuneaton line should be constructed jointly. The Midland Bill succeeded in passing through Parliament, and in the next session powers were obtained providing for the line becoming joint Midland and North-Western property. By this arrangement the North-Western secured the promise of a new route, when constructed, between Burton and Derby and the South *via* Nuneaton. While on the subject of Parliamentary Bills, it may be mentioned that during this session the North-Western also secured Parliamentary powers for the construction of various lines of a total length of 27 miles, and for these and for other purposes it was authorised to raise new capital, including loans, to an extent of over two millions.

At the beginning of the year a large new station at London Road, Manchester, was being constructed for the joint use of the London and North-Western and Manchester, Sheffield and Lincolnshire Railways in place of the original station built to accommodate the Manchester and Birmingham Railway. The design took the form of a double glass span, supported in the centre on

columns, and the work was proceeding satisfactorily, all the iron-work being completed and the glazing begun, when in the afternoon of the 22nd of January a part of the roof came crashing down to the ground. Work on the roof was in full progress at the time, and about thirty men were injured, many of them seriously, two afterwards dying of their injuries. A train of the Manchester, Sheffield and Lincolnshire was just about to start for Sheffield, when some of the debris fell on the engine; had it started, part of the train would almost undoubtedly have been crushed by the falling iron work. The total length of the station roof was 240 yards, and each of the spans were built in eight sections; along the centre of the building was a girder supported on nine columns, each 27 feet high, on which the two spans rested, and it was the girder which supported the two spans at the seventh section which collapsed. A considerable part of the structure was left standing, but part of the remaining portion was somewhat twisted and out of the perpendicular, and so, after a thorough examination by the engineers, it was decided to take down the whole structure. This operation was accordingly arranged to be carried out at eleven o'clock at night, and the neighbouring streets were closed for traffic in order to guard against any possibility of accident. We will complete the story of the dismantling of the roof by quoting from Mr. G. P. Neele, the superintendent of the line of the London and North-Western and an eye-witness of the operation. "Mr. Baker, Mr. Sacré, Mr. Fenton, Mr. Underdown, Mr. Bancroft, Mr. George Lee, and Mr. C. Mason," says Mr. Neele in his 'Railway Reminiscences,' "were present. We watched the process of the unfastening of the bolts above and below, which formed the bond of the structure, till at last one final bolt in the frame of the roof alone remained. The men in charge of the work carried

[Mr. H. Gordon Tidey.

NORTH WALES EXPRESS PICKING UP WATER AT BUSHEY TROUGHS; 4-6-0 LOCOMOTIVE, *Ethelred*.

Photo]

out the last unscrewing almost in silence—a glimmering light high up was all we could see. When Sacré, who was in charge, made the final enquiry, ‘Are you ready? Then come down,’ we all retired to a place of safety, and watched the two locomotives, to which were attached strong chains, securely fastened at the other ends to the pillars carrying the remaining portion of the glass roof. Both moved slowly forward, and the whole super-structure fell within its own space, with the most remarkable display of scintillation; the crushing iron work giving out millions of glittering sparks.” This regrettable accident naturally greatly inconvenienced the working of the Manchester traffic; for a few days London Road Station was closed altogether and the traffic was dealt with at Ardwick, a station not quite a mile from the London Road terminus. The work of rebuilding the station was immediately taken in hand, and in course of time a magnificent new erection was reared. The new London Road Station was built with two great arched spans, one for the accommodation of the London and North-Western and one for the accommodation of the Manchester, Sheffield and Lincolnshire, both Companies having their own staff and working their own side of the station.

The receipts for the two halves of 1866 were £2,982,849, and £3,329,217, while the dividend on the ordinary stock was at the rate $6\frac{3}{8}$ per cent. per annum.

The year 1867 was a year of great expansion for the London and North-Western, and during this year it absorbed a large number of smaller systems, a list of which, together with a few particulars of each, we will proceed to give. In the Birmingham district the Company absorbed two lines, the Birmingham, Wolverhampton and Stour Valley, and the South Staffordshire, both of which lines it was already working, and of which

particulars have already been given. Another line worked by the North-Western, which became definitely merged in the Company during this year, was the South Leicestershire Railway; this line, as already recorded, ran from Nuneaton to near Leicester, and by Act of Parliament passed during the year it was vested in the North-Western at a guaranteed dividend of 5 per cent. At the London end of the system the company absorbed the Hampstead Junction Railway, but the change was practically one of name only, for the North-Western had subscribed to the Hampstead Company and had worked the line from its opening. Another line which became definitely merged in the North-Western this year was the Warrington and Stockport Railway, and here again the change was only one of name, for the North-Western was already working the line. At the northern end of the system the London and North-Western, jointly with the Lancashire and Yorkshire Company, took over the Fleetwood, Preston and West Riding Junction Railway, a company with an ambitious title whose constructed railways consisted of a short line some $8\frac{1}{2}$ miles in length, stretching from Preston to Longridge. In North Wales the company took over three local railways, the Bangor and Carnarvon, the Conway and Llanrwst and the Vale of Clwyd. The positions of the first two are sufficiently explained by their titles, while the third stretched from a junction with the Chester and Holyhead section, near Rhyl, to the town of Denbigh. Both the latter lines were vested in the North-Western at guaranteed 5 per cent. dividends. By means of these amalgamations, although this naturally increased the capital liability of the company, the London and North-Western greatly consolidated its system. During the same year the North-Western obtained Parliamentary powers for several short lines of

about 9 miles, and also obtained Parliamentary sanction for several intimate agreements with other companies. In the districts around the Merthyr, Tredegar and Abergavenny section the North-Western entered into close arrangements with the Rhymney Railway for the construction of a joint line. The Rhymney Railway was already authorised, as we have previously seen, to make an extension from Rhymney to join the North-Western at Nantybawch, and it was now arranged that it should be constructed jointly by the two companies. Another very important agreement sanctioned during the year was that between the London and North-Western and the North Staffordshire. An amalgamation between the two had for long been talked about and, indeed, Parliamentary sanction had been sought more than once, but without success. The two systems touched at many points, all the lines of the two companies were complementary to each other, the lines of the North Stafford and London and North-Western together forming the shortest route between London and Manchester. It was realised that the interests of both companies would be best served by a system of close working, and since the attempts at amalgamation had previously proved abortive, it was arranged to enter into a new working agreement. By this agreement the London and North-Western was given running powers over all the lines of the North Staffordshire, while the North Stafford was granted powers over the lines of the North-Western into Manchester, Liverpool and Birmingham. The agreement was an excellent one for both parties. To the North-Western it meant that should the North Stafford ever become hostile, or by any chance fall into other hands, the North-Western would still have access to the important district of the Potteries with its own trains and would still be able to make use of the

lines of the North Stafford as a link in its chain of communication. In addition to the foregoing Parliamentary business which the North-Western carried through during the year, it also obtained powers for a new dock on the Mersey at Garston, whilst it was also authorised to subscribe various sums of money to the Lancashire Union, Central Wales, Central Wales Extension and Harborne Railways. Thus it will be seen that 1867 was a busy session for the North-Western; it was also a session which entailed very heavy additions to capital account, amounting to well over two millions. The two previous sessions had also been somewhat heavy in this respect. The new capital liabilities in the session of 1866 amounting to over two millions, and in 1865 to over one million. But there is no doubt that these capital liabilities were well justified, and this is amply proved by the fact that in spite of these huge increases the dividend was maintained or practically so, and, indeed, soon afterwards started to rise. During the three sessions 1865, 1866 and 1867, the North-Western improved its position in many parts of the country and greatly consolidated its system.

The year 1867 was singularly free from important openings, perhaps the chief was that of the short branch line from Huddersfield to Kirkburton.

The receipts for the two halves of the year were £3,053,481 and £3,420,497, and the dividend was at the rate of 6 per cent. per annum.

CHAPTER XI.

1867—1871

“THE INVASION OF SOUTH WALES”—THE ABER-GELE ACCIDENT—PROPOSED AMALGAMATION WITH THE LANCASHIRE AND YORKSHIRE—MR. RAMSBOTTOM AND HIS LOCOMOTIVES, AND OTHER MATTERS.

We have already seen how the London and North-Western had obtained, by the amalgamation of the Chester and Holyhead Railway, the virtual monopoly of North Wales, while by the absorption of the Shropshire Union and Shrewsbury and Welshpool Railways (the latter jointly with the Great Western) it had also secured a good route to Mid Wales from the Midlands and South of England; but it must be confessed that at this period the North-Western was practically a negligible quantity in South Wales. It is true that it just penetrated into the district, but it was there in a very weak way. By the taking over, jointly with the Great Western in 1862, of the Shrewsbury and Hereford Railway the North-Western extended its frontier to within a comparatively short distance of South Wales, and shortly afterwards it absorbed the system of the little Merthyr, Tredegar and Abergavenny Railway, a small local line in South Wales, but access to this isolated portion of its system could only be obtained by exercising running powers over the lines of the Great Western between Hereford and Abergavenny, a state of affairs which was by no means too satisfactory. At one time indeed it had looked as if the London and North-Western were

going to make a bold bid for the traffic of this part of South Wales, for, as the reader will probably remember, in the early fifties the North-Western had entered into an arrangement to work the line of the Newport, Abergavenny and Hereford Railway, a railway, be it said, with which the North-Western had no physical connection, the nearest line of the North-Western being distant many miles. This state of affairs did not last for long and the North-Western soon gave up the working of the line, and turned its attention to more pressing needs in what may justly be termed more legitimate parts of its system. For some time, therefore, the North-Western practically abandoned South Wales. Towards the end of the fifties and in the early sixties the policy of the North-Western again underwent a change, and once more its eyes turned to the great industrial districts of South Wales. The absorption of the Shrewsbury and Hereford put the North-Western well on to the road to possessing a line of its own to South Wales, and the purchase of the Merthyr, Tredegar and Abergavenny gave the North-Western a stake in the South Wales district, although not an independent route to the district, since, as already stated, access to this latter line could only be obtained by exercising running powers over the Great Western, thus the North-Western obtained an entrance to the eastern part of South Wales. At the very end of the fifties a chain of railways was authorised, commencing at Craven Arms, a station midway between Shrewsbury and Hereford, and running through the centre of Wales to join some of the local lines in western South Wales. These lines were the Knighton, the Central Wales and the Central Wales Extension Railways, and from their incorporation they were on intimate terms with the London and North-Western, their chief object

being to connect South Wales with the important towns on the North-Western system in the North of England. The Central Wales was worked by the North-Western from its opening, and arrangements were also entered into to work the Central Wales Extension; and in 1868 the Central Wales (which had previously absorbed the Knighton Railway) and the Central Wales Extension Railways were taken over by the North-Western. Thus the London and North-Western obtained a route of its own from the North of England to the western part of South Wales, in addition to its existing route to the eastern part of South Wales, the two routes uniting at Craven Arms, a station between Shrewsbury and Hereford. We will now proceed to deal briefly with the history of the Central Wales lines. At an early period it was recognised that there would be a large traffic between North and South Wales and between South Wales and the North of England, and it was largely with the idea of obtaining this traffic as well as that between the North and West of England that the Shrewsbury and Hereford Railway was incorporated in 1846. By means of connections at Hereford it was hoped to obtain most of the traffic between South Wales and the North of England, but while this was undoubtedly an excellent route for the eastern part of South Wales, it was found to be rather circuitous for the western district, and rival schemes for making a direct route from the North to South Wales began to come forward. The first germ of the Central Wales scheme appeared in 1858, when the Knighton Railway was incorporated, with a capital of £66,000 and £22,000 in loans, to construct a line, 12 miles in length, from the Shrewsbury and Hereford at Craven Arms to the town of Knighton. The line ran in a south-westerly direction through the fringe of a large district devoid of

railway communication, and it must have been fairly obvious at the time that the line would not stop at Knighton, but would be extended through this railwayless district, and that it would probably at some future date form part of a new route to South Wales. It was not very long before this scheme attained a definite shape, for during the next year a "Central Wales Railway"

THE LONDON AND NORTH-WESTERN RAILWAY HOTEL,
NEW STREET STATION, BIRMINGHAM.

was incorporated with a capital of £160,000, with a further £53,300 on loan, authorised to construct a line of 20 miles through the centre of this untouched district from the Knighton Railway at Knighton to Llandrindod in Radnorshire. But already a rival had appeared in the field, for in the same year a Mid-Wales Railway was authorised to construct a line from Llanidloes on

the Cambrian Railways to Newbridge, a place not very far from Llandrindod, and it was not necessary to be a seer to foretell that this line would not permanently terminate in this sparsely inhabited country, but that it would be extended through the district to link up with the railway system of South Wales. However, the scheme for a "Central Wales" line to South Wales attained fruition during the next year (1860), for in that year the Central Wales Extension Railway was incorporated with a capital of £208,000, and loans of £69,333, authorised to build a line 26 miles in length from the Central Wales at Llandrindod to Llandovery, there to effect a junction with the Vale of Towy Railway, which connected with the Llanelly Railway, and so with all the railways of the district. But the traffic between South Wales and the North was apparently a very tempting bait, for during this session another rival came forward and was successful in obtaining Parliamentary sanction. This line was called the Manchester and Milford, and, although its name was misleading, since it did not run to either place, its authorised railway, consisting of a line from Llandidloes on the Cambrian to Pencader on the Carmarthen and Cardigan Railway, its title was suggestive of its object, namely, to connect the large towns of the North of England with the ports of South Wales. The Knighton Railway was worked by the London and North-Western, and by Act of Parliament passed on 21st of May, 1863, the Knighton Railway was amalgamated with the Central Wales Railway, and arrangements made for the North-Western to work the 32 miles of railway of the united company. The work of constructing the Central Wales Railway proved a difficult task, to quote the words of the Chairman, "so enormous were the difficulties, that had it not been for the pecuniary responsibility often undertaken by the

Directors and the Members of Parliament representative of the district, the fertile resources and skill of the engineer, the great assistance of the contractors, and last, but not least, the cordial sympathy and co-operation of the London and North-Western Railway, the works would have had to be temporarily abandoned." The work of construction occupied about five years; the country through which the line ran was extremely wild and hilly, and the gradients of the line were necessarily severe; perhaps the biggest engineering works on the line were the Knucklas viaduct, which crossed a valley at a height of some 75 feet, and consisted of thirteen stone arches of 30 feet span, and the Llangunllo Tunnel, which was 645 yards long. The public opening of the Central Wales Railway took place on the 10th of October, 1863, when a special train, consisting of eighteen coaches drawn by two gaily caparisoned locomotives, conveyed the invited guests along the line to Llandrindod, where, amidst great rejoicings and with bands playing, an enormous banquet was partaken of. Five years later the Central Wales Extension Railway was opened from Llandrindod to Llandovery, there connecting with the Vale of Towy Railway, which connected with other railways in South Wales, and provided through communication with Swansea, Carmarthen and other towns. The opening of the Central Wales Extension Railway took place on the 8th of October, 1868, amongst the usual rejoicings inseparable from these occasions, and with the inevitable banquet which took place at Llandovery. Previous to the opening, it had been arranged that the London and North-Western should work the line for 50 per cent. of the gross receipts of the goods traffic, and for 40 per cent. of the gross receipts of the passenger traffic. By the opening of the line, the London and North-Western obtained a

new route from the North of England to Western South Wales, which effected a saving of 55 miles in distance as compared to the old Hereford route. As we have previously seen, the southern end of the Central Wales lines terminated at a junction with the Vale of Towy Railway, a small line of eleven miles connecting the Central Wales Extension Railway at Llandovery with the Llanelly Railway at Llandilo, the latter railway being an important system of lines communicating with Carmarthen, Llanelly and Swansea. The Vale of Towy was worked by the Llanelly Railway, but in 1868 it was jointly leased by the Llanelly, the Central Wales, and the Central Wales Extension Railways. As we are now dealing with the North-Western in South Wales, we will anticipate a little in order to complete in the same part the account of its growth in this district. By the lease of the Vale of Towy, in 1868, the North-Western obtained a route as far south as Llandilo, where connection was made with the Llanelly Railway. The next move on the part of the North-Western, in its policy of invading South Wales, did not take place for some time. In tracing the growth of the North-Western in South Wales it is now necessary to deal briefly with the history of the Llanelly Railway, a line whose fate was one of the most curious in railway history. The Llanelly Railway grew out of a dock company at Llanelly incorporated in 1828. By Act of Parliament passed in 1835 a railway was authorised from Llanelly to Llandilo, together with various branches; a lease of the Vale of Towy was afterwards entered into, and extensions authorised to Carmarthen and Swansea. The through route of the Central Wales, the Knighton, and the Central Wales Extension Railways, as we have previously seen, joined the Llanelly's Vale of Towy section at Llandovery, and intimate arrangements were entered into with these companies, and the

Vale of Towy afterwards leased jointly. In 1871 the Carmarthen and Swansea sections of the Llanelly Railway were incorporated as a separate company under the title of the Swansea and Carmarthen Railway. This Swansea and Carmarthen Railway consisted of two isolated sections, only joined together by the line of the Llanelly Railway; but this apparently did not matter much, as the lines continued to be worked by the Llanelly Railway.

In 1873, however, the London and North-Western bought the Swansea section of the Swansea and Carmarthen, consisting of the lines south of Pontardulais between Pontardulais and Swansea, for the sum of £310,000. Thus the North-Western obtained a route of its own, except for the short section of the Llanelly Railway between Llandilo and Pontardulais, the whole way between the North of England through the centre of Wales to the South Wales Coast. It must be mentioned that the Llanelly Railway disputed the right of the Swansea and Carmarthen Railway to undertake this transaction with the North-Western, but it was unsuccessful at upsetting the agreement. At the same time as the North-Western bought the Swansea section, the Carmarthen section adopted a new name, and thenceforward became known as the Central Wales and Carmarthen Junction Railway. However, although it did not buy this section, the North-Western worked it, and to anticipate even further than we have been doing, it may here be said that in 1891 the North-Western purchased it outright. As we have previously recorded, in 1868 the Central Wales and Central Wales Extension Railways were taken over by the North-Western, which thus obtained another route to South Wales in addition to its previous route *via* Hereford and Abergavenny; and so, having briefly recounted the history of

this second route, we will now return to the consideration of other matters which were taking place during 1868.

Several openings took place during the year in various parts of the North-Western system, but none were of any great moment. To return to South Wales once more, a short length of line was opened here from Nantybwch to Tredegar, where connection was made with the Sirhowy Railway, a small local line running through an industrial district, which was thus for the first time brought into direct communication with the North-Western system.

On the 1st of July the Sandbach, Middlewich and Northwich line was opened for traffic. The branch was a single line, and, commencing at Sandbach on the Manchester-Crewe section, ran northwards through Middlewich to Northwich, where a junction was effected and a station shared with the Cheshire Lines Railway, the latter being a joint affair of the Great Northern, Manchester, Sheffield and Lincolnshire, and Midland Companies.

Several lesser openings took place, chief of which were the extension of the Conway and Llanrwst line to Bettws-y-Coed, which was opened in April, and in November a station at Warrington, with high-level platforms for the main line, and low-level platforms for the Garston-Altrincham line, which here passed under the main line at right angles.

Undoubtedly the most important event which occurred during 1868, from a railway point of view, was the opening of the Midland Railway's extension to London which, together with its vast new terminus at St. Pancras, was opened for passenger traffic on the 1st of October. This meant the definite advent of the Midland Company as a first class North and South railway power and for the North-Western it meant increased

competition, for now that the Midland possessed its own line to London, there could be no doubt but that it would become a serious competitor to the North-Western in many parts of the country.

The year 1868 witnessed the worst accident which has ever occurred on the London and North-Western Railway, and, indeed, one of the worst which has ever occurred on any British Railway. Up to this date, when one considers the extent of the system, the London and North-Western had

SIX-WHEEL TRAVELLING POST OFFICE IN USE IN THE 'SEVENTIES.'

been fairly free from bad accidents, four or five only having happened in its history of over twenty years. During the preceding year there had been a serious accident at Walton Junction, near Warrington, which had resulted in the deaths of seven persons, but bad as this was, it shrank into comparative insignificance when compared to the appalling disaster at Abergele, which happened on the 20th of August, 1868, and which was by far

the greatest catastrophe which had up till this time taken place on a British Railway.

Abergele is a small place midway between Chester and Holyhead, and on the 20th of August, 1868, the Irish Mail, which had left Euston at 7.15 a.m., was proceeding along the line, which here skirts the North Wales Coast, when at Abergele it dashed into some trucks which had got on to the main line. These trucks, it appears, had broken away from a goods train which was loading at the Llysfaen Lime Works, and had run backwards along the line, which was here, unfortunately, on a descending gradient, being known as the Llandulas incline. The express ploughed its way through the runaway trucks at full speed, and the result may well be imagined, the express was wrecked. Unfortunately, the worst has yet to come, for the runaway wagons were loaded with paraffin oil, and the moment after the collision had occurred, the remains of the locomotive and the first three coaches of the express were enveloped in flames and dense clouds of thick black smoke. It has been recorded by an eye-witness, that not a sound was heard or a movement seen in the first three coaches, indeed, at first it was thought that the first three coaches must have been empty, but this, unfortunately, proved to be far from the case. There can be no doubt that the unhappy passengers in the front part of the train were instantaneously stifled by the choking, black vapour, and while thus in an insensible condition were consumed by the flames. The extent of the disaster was not at first known, but when a search was afterwards made among the wreckage, the charred remains of thirty-three persons were discovered, and they were interred together in the little churchyard at Abergele, and a monument erected to them, telling of one of the most appalling disasters which has ever taken place on

an English Railway. Among the victims were Lord and Lady Farnham and Sir Nicholas and Lady Chinnery, whilst amongst the survivors were the Marquis and Marchioness of Hamilton and their family. Fortunately, for the London and North-Western Railway, the Abergele disaster stands alone, no other disaster on the line, either before or afterwards, approaching it in awfulness or magnitude.

For the two half-years the receipts were £3,053,041 and £3,430,522, and the dividend declared on the ordinary stock for the year was at the rate of 6 per cent.

Several important new works were brought into use during 1869, and of these the most important was undoubtedly the great Runcorn Bridge over the River Mersey. Powers to construct this bridge had been obtained in 1861, its object being to lessen considerably the distance between Liverpool and the South, and its construction throws an extremely favourable light on the policy of the London and North-Western Board, which was to provide the best possible facilities for the public, and to undertake improvements at an enormous cost for the purpose of improving the route between Liverpool and the South, of which traffic it already had a virtual monopoly, as there was no very serious competition on the part of other lines. The bridge at Runcorn, which was opened in April, was of a total length of about half-a-mile, and consisted of stone approach viaducts at each end, and in the centre three open lattice girder spans, each of 305 feet span, and carried on stone towers, crossing the river at a height of 75 feet above high water mark of the river, which was here tidal. The opening of the Runcorn Bridge revolutionised the train service of Liverpool, and greatly improved that city's access to the South. Previous to this,

trains for the South had had to run practically due East to Warrington when the main line was reached, but now trains for the South run *via* Runcorn, and saved a considerable distance as compared to the old route. As some slight recompense for the enormous cost of the bridge, Parliament granted the North-Western special powers whereby the fares between Liverpool and the South should be based on the mileage of the longer route *via* Warrington. Most impartial persons will consider this a very just Act, indeed it would have been very unjust if one of the results of building this costly bridge had been to lessen the fares. Such a result would have been nothing less than the penalising of enterprise. Another important opening during the year was that of the Mold and Denbigh Railway, which took place in September. The Mold and Denbigh Railway was incorporated in 1861 to construct a line of about 15 miles, commencing at Mold with a junction with the North-Western and terminating at Denbigh, where it joined the Vale of Clwyd Railway, a line absorbed by the North-Western in 1867. It was arranged that the line should be worked by the London and North-Western, and by its opening the North-Western secured a loop line, with the help of its Mold branch and Vale of Clwyd lines, from a point near Chester to Rhyl. During this year, in April to be precise, the London and North-Western and North-Eastern Railways opened their great new joint station in Leeds, called the New Station.

The accommodation of both companies in Leeds for some time past had not been too satisfactory, and so in 1865 the two companies had joined hands and secured powers to erect a new central station, and for this purpose each company had been empowered to raise £100,000 additional capital and £33,000 on mortgage. The New

Station was situated in the centre of the city of Leeds, and on its opening the trains of the North-Western and North-Eastern Companies were transferred to it from the Central and Wellington Stations. The opening of the New Station greatly improved the through communication between the North-Western and North-Eastern systems, excellent connections being made at Leeds between Manchester, Liverpool and Birmingham, and York, Newcastle, Hull, Sunderland and the North-Eastern Coast.

A line which the North-Western absorbed during the year was the Cannock Mineral line, a line extending from Cannock on the South Staffordshire section to Rugeley Station on the Trent Valley section. This line, which had originally been incorporated in 1847 under the imposing title of the Derbyshire, Worcestershire and Staffordshire Junction Railway, had been reincorporated in 1855, and afterwards leased to the London and North-Western at a rental of £5,500 per annum, which was at the rate of $3\frac{1}{4}$ per cent. on its capital. Another small railway which was taken over by the London and North-Western during the course of the year was the Brynmawr and Blaenavon. This was a small line in South Wales connecting Blaenavon with the Brynmawr Station of the Merthyr, Tredegar and Abergavenny section, a distance of about $4\frac{3}{4}$ miles. The railway had been incorporated in 1866 with a capital of £80,000, including loans, and it was opened for traffic at the end of this year.

During this year the London and North-Western constructed for the use of Queen Victoria two Royal saloons, which were considered at the time of their introduction to be veritable masterpieces and the last word in the art of the railway coachbuilder. Previous to this there had been Royal saloons, indeed, as far back as 1842, the

London and Birmingham had introduced a saloon for the use of Queen Adelaide, the consort of King William IV., a saloon which had been constructed by a leading coachbuilder in London, and which resembled a series of coaches mounted on a frame. After this various saloons were used for making up the Royal trains, but it was recognised at Euston that the London and North-Western, as the greatest railway of the kingdom, should possess a Royal saloon worthy of the conveyance of the ruler of the greatest empire in the world. Accordingly, with this object in view, the construction of two saloons was undertaken at Wolverton, and these were completed and brought into use during 1859. These two saloons each ran on six wheels, and were connected together by a gangway; the two saloons together having a total length of 60 feet. Inside they were fitted up and furnished with every comfort, and they contained a night apartment with a bedstead and a day apartment, together with compartments situated at the ends for ladies-in-waiting and attendants. The day apartment in particular was most luxuriously furnished, containing a settee, chairs, tables and other furnishings of an ordinary room, while the walls were upholstered in blue watered silk and the ceiling covered with white silk. The first time on which the new Royal saloons were used was on May 14th on the occasion of Her Majesty's journey from Windsor to Balmoral.

During this year the English and Scottish Alliance, an alliance which, it will be remembered, had been formed to divide in agreed proportions. The traffic between England and Scotland came to an end, and by general consent of the parties interested it was not renewed. The fact was that pooling agreements were not a success; formed as they were, with the idea of abolishing competition, they failed in their object, for each Company was

anxious to demonstrate to the utmost the capacity of its route in order to obtain a larger share of the traffic when the pool was renewed, and thus competition still went on. On the termination of the pooling agreement the railways interested in the Anglo-Scottish traffic agreed to charge equal rates between competitive points. Another important event in Anglo-Scottish railway matters took place during this year, namely, the depositing of a Bill by the Midland Company for the abandonment of the Settle and Carlisle line. It will be remembered that the London and North-Western had strongly opposed the Settle and Carlisle Bill of the Midland Company, and had offered the latter terms for the joint use of its Lancaster and Carlisle line, terms however, which the Midland had declined. The North-Western considered that it was sheer waste to construct at a cost of £2,000,000 the Settle and Carlisle line, which was planned to run for a distance of 80 miles through a desolate country, parallel to and only a few miles away from the Lancaster and Carlisle line. This view was shared by a good many other people, and at last it was taken by the Midland Board, or, we should more truthfully say, pressed upon them by a Committee of Shareholders. The North-Western, as we have already seen, had all along been willing to meet the Midland Company, and negotiations again took place between the two Companies with the result that it was arranged that the Settle and Carlisle line should be abandoned, and that the line between Ingleton and Carlisle should be placed under the management of a joint committee of the two Companies. By the terms of the agreement it was arranged that the Midland should guarantee to the North-Western a minimum sum of £40,000 as rental for the line, and that it should have equal rights with the North-Western over the line except with regard to local traffic between Low Gill and

Carlisle, on which traffic certain restrictions were imposed. A Bill for the abandonment of the Settle and Carlisle line was accordingly deposited and came before Parliament during 1869, but it met with a storn of opposition, especially from the North British and Lancashire and Yorkshire Railways, which were both anxious for the construction of the line. At last after a hearing before a House of Commons Committee lasting for six days, the Bill was thrown out and the agreement arrived at by the North-Western and Midland Railways was thus set at nought. Had the Bill for the abandonment of the Settle and Carlisle line successfully

THE TRIPLE SCREW TURBINE STEAMER *Greenore*, ENGAGED IN THE HOLYHEAD GREENORE EXPRESS SERVICE.

passed through Parliament, an enormous sum of money, spent on what was practically a duplication of the Lancaster and Carlisle line, would have been saved; but Parliament decreed otherwise, and the construction of the Settle and Carlisle line consequently proceeded. In addition to being interested in the Bill for the abandonment of the Settle and Carlisle line, the North-Western had a Bill of its own in Parliament, which, unlike the former, was successful in passing. Besides containing provisions for the purchase of lands, and the

construction of several minor works, it authorised the construction of a new junction line about $7\frac{1}{2}$ miles in length at Frodsham. It also authorised the vesting in the North-Western of the Cannock Mineral and Brynmawr and Blaenavon Railways, particulars of which have already been given. Besides this it provided for the transfer from the Mid Wales Railway to the North-Western of the Builth Junction curve, a short junction line connecting the Mid Wales with the Central Wales section of the North-Western at Builth. It also contained provisions for the confirmation of various agreements between the London and North-Western, and the Mold and Denbigh (for the working of the latter by the former); the Great Eastern; the Hereford, Hay and Brecon; and the London, Brighton and South Coast. The new capital which the Bill authorised was £90,000, and £60,000 in loans. The most interesting part of the Bill, however, was perhaps that dealing with the capital of the Company, for in the Bill the capital of the Company was definitely defined at £42,894,748, together with loans amounting to a further £16,483,078. It is interesting, as showing the great growth of the Company, to compare the capital as existing at this time, with the capital of the Company when it was first formed by amalgamation in 1846. In 1846 the capital of the Company was £17,242,310, in 1869 it was £42,894,748; in 1846 the loans stood at £5,747,310, while in 1869 they were £16,483,078. Thus between 1846 and 1869 the total capital of the Company, including loans, had grown from £22,989,620 to £59,377,826, or in other words in twenty-three years the capital had considerably more than doubled itself.

For the year both the receipts and the dividend showed a slight increase; for the two half-years the receipts were £3,106,608 and £3,498,234, and the dividends were £2 15s. and £3 10s., making

a total dividend of $6\frac{1}{4}$ per cent. for the whole year, or an increase of a quarter per cent. on the dividend for the preceding year.

The most important opening during the next year was that of the Lancashire Union line, which took place on the 1st of January. The Lancashire Union Railway, as has already been recorded, was a subsidiary of the London and North-Western, formed to provide direct railway communication between several important towns in Lancashire. To the capital of the Lancashire Union the North-Western largely subscribed, and afterwards came to an arrangement with the Lancashire and Yorkshire whereby the latter company became jointly interested in various parts of the line. The line ran from St. Helens through Wigan and Chorley to Blackburn; from St. Helens to Wigan the North-Western exercised sole control over the line, from Boar's Head to Adlington and from Chorley to Cherry Tree the line became joint North-Western and Lancashire and Yorkshire, while from Cherry Tree to Blackburn the North-Western obtained access over the line of the Lancashire and Yorkshire. Another important opening which took place during this year, and which was also in Lancashire, was the Bootle branch, which took place in July. The Bootle branch diverged from the main London-Liverpool line at Edge Hill, and after circling round a large part of Liverpool, picking up traffic at several stations on the way, terminated at Canada Dock, where communication was obtained with all the north end of the Liverpool Docks system.

During this year the North-Western took over several small railways. In North Wales it absorbed the Carnarvonshire Railway and the Carnarvon and Llanberis. The Carnarvonshire Railway started at a junction with the Bangor and Carnarvon branch of the North-Western at

Carnarvon, and ran almost due southwards to Afonwen, a little place on the Cambrian Coast, where it connected with the Cambrian Railways. Perhaps the most interesting feature of the Carnarvonshire Railway was the fact that it included the Nantlle Railway, one of the very earliest railways or tramroads authorised in the country. The Nantlle was incorporated by Act of Parliament 6 Geo. II., in 1825, with a capital of £20,000, and it was opened in 1828, and was almost entirely used for the conveyance of slate. The Carnarvon and Llanberis was a small local line of some 9 miles, to which the North-Western had previously subscribed, and whose sphere of activities was satisfactorily described by its title. During this year an Act of Parliament was passed whereby the Shrewsbury and Hereford Railway, which, as the reader will probably remember, had been leased by the North-Western and Great Western for some time, was definitely vested in the two companies.

This year witnessed a great improvement in the communication between England and the North of Ireland, for during the year the London and North-Western and Lancashire and Yorkshire Railways jointly took over the fleet of the North Lancashire Steam Navigation Company, which plied between Fleetwood and Belfast. The line between Preston and Fleetwood was a joint affair of the North-Western and the Lancashire and Yorkshire, so it was quite natural that the two companies should wish to obtain possession of the steamboat company, and thus secure full control of the entire route to Belfast. The service between Fleetwood and Belfast was an old one, having been started in 1843 by the North Lancashire Steam Navigation Company, when the two ships *Prince of Wales* and *Princess Alice* carried on the service. Traffic on the route, however, rapidly increased, and at the

time the steamboat company was taken over the fleet consisted of five steamers—the *Prince of Wales*, the *Princess of Wales*, the *Duke of Connaught*, the *Earl of Ulster*, and the *Thomas Dugdale*.

The year 1870 was an extremely unfortunate one for the London and North-Western, for the year produced a successive string of accidents, the like of which has, fortunately, never been equalled either before or afterwards.

The first of the series occurred at Carlisle, on July 9th. An up West Coast express was leaving Carlisle, and had proceeded about half a mile on its journey southwards, when it was suddenly crashed into by a North-Eastern goods train at a place where there was a crossing. The result of this may well be imagined. Six passengers were killed, while many were more or less seriously injured. In less than two months another startling accident occurred. This time it was at Penruddock, on the Cocker-mouth, Keswick and Penrith Railway, a railway whose traffic, it will be remembered, was worked by the London and North-Western and North-Eastern Railways. On the 2nd of September there was a great Volunteer Review at Penrith, and the line was crowded with trains conveying return excursionists, and unfortunately an excursion train, conveying 400 persons, at Penruddock ran into another train conveying 600 people. Fortunately no one was killed, but 110 passengers were injured. This accident led to a dispute between the North-Western and Cocker-mouth, Keswick and Penrith Railways as to their respective liabilities, and at length the matter was settled by arbitration. A fortnight had not elapsed since the Penruddock accident when news came of another accident on the London and North-Western system. On the 14th of September the Irish Mail

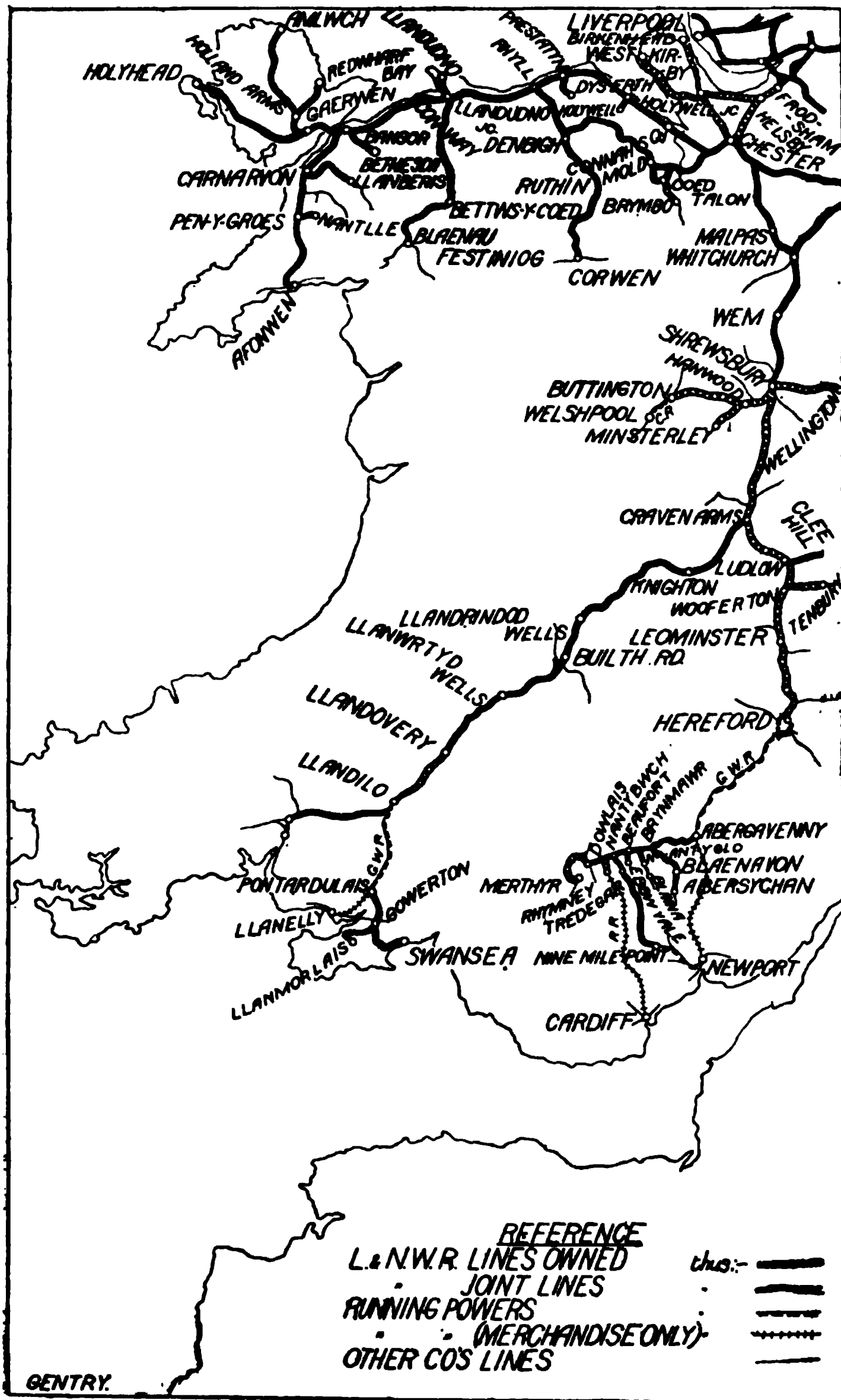
was proceeding through Tamworth on its journey to the Metropolis, when, instead of continuing its journey along the main line, it swerved into a siding, crashed through the buffers at the end, and lay a complete wreck on the banks of the river Anker. The reason for this was as follows: The signalman, on account of a misunderstanding, supposed the approaching Irish Mail to be a coal train, and accordingly set the points and signals for the 'supposed' coal train to go into the siding until the Irish Mail had passed. The result was disastrous, but not so disastrous as one would have supposed, the total death roll amounting to three. A little more than two months after this another catastrophe occurred on the line. On the 26th of November, in a black fog, the 3 p.m. Liverpool express out of Euston, when it had proceeded as far as Harrow, ran into the rear portion of a coal train which had become detached from the front portion, owing to the breaking of a coupling; the express ploughed its way into the coal train, and lay a mass of wreckage amidst the debris. Six people were killed, while forty-one more were injured.

Thus, by a succession of sheer bad luck, the North-Western experienced four accidents in five months. Fortunately, however, the Harrow accident proved to be the last of the series.

The North-Western did not obtain any very important new Parliamentary powers this year. Apart from the purchase of the Fleetwood to Belfast steamers jointly with the Lancashire and Yorkshire, it obtained powers for the extension of time for the completion of several works, and powers for the extension of the station at Leeds and Preston, and for these and other purposes it was authorised to raise £383,100 in new capital and loans. The receipts were £3,267,112 for the first half of the year, and £3,648,367 for the

second half, and the dividend on the ordinary stock for the year was at the rate of $6\frac{5}{8}$ per cent.

By Act of Parliament of 14th August, 1871, the North and South-Western Junction Railway was leased to the London and North-Western, North London and Midland Railways jointly. The North and South-Western Junction was a railway of some five miles, incorporated in 1851 and opened in 1853, extending from the North-Western at Willesden to the South-Western near Kew. By the agreement, the lessee companies agreed to pay a rental of £9,502 per annum, a sum equal to 7 per cent. on the ordinary capital of the North and South-Western Junction. By the lease of this railway the North-Western secured another route for traffic between the North of England and the railways south of the Thames. During this year the London and North-Western and Lancashire and Yorkshire jointly took over the little Blackpool and Lytham Railway, a line seven miles in length connecting the two towns named in its title. The London and North-Western and Lancashire and Yorkshire already possessed a line to Lytham from the South, but there was no junction at Lytham with the Blackpool and Lytham Railway; arrangements were therefore made to construct a junction, and this promised to give to the North-Western and Lancashire and Yorkshire a second route into the great and growing seaside resort of Blackpool. The Blackpool and Lytham Railway had been incorporated in 1861, with a capital of £45,000 and £15,000 on loan, and it had been opened on the 6th of April, 1863. By the terms of the transfer the sum of £33,600 was paid to the ordinary shareholders, while the North-Western and Lancashire and Yorkshire took over all the other liabilities of the company. A very important opening took place in September, namely, the joint



THE LONDON AND NORTH-WESTERN RAILWAY IN WALES AND ON THE WELSH BORDER.

line of the North-Western and Rhymney Companies between Rhymney and Nantybawch, and although the length of the line itself was small, being only three miles, its importance was great, for it opened up an entirely new and direct route between Cardiff and the North of England *via* the Rhymney and North-Western Railways. By the opening of this line the London and North-Western obtained direct access to the Cardiff docks, where it was given full facilities for its traffic. We have seen how, at an early period of its history, the London and Birmingham Railway constructed an hotel at Euston for the convenience of its patrons, and in pursuance of this policy of giving every facility to travellers, the London and North-Western undertook the construction of an immense hotel at Liverpool, which was opened on the 1st of March. This hotel was constructed to form the facade to Lime Street Station; built in the style of the French Renaissance with a length of 316 feet, and with towers rising to a height of 157 feet, the hotel forms an imposing block, and together with the St. George's Hall, which is opposite, and other public buildings around, architecturally forms one of the finest vistas in the country. Several lesser improvements and openings took place on the system during the year, the quadrupled lines between Huyton and Edge Hill, Liverpool, were brought into use, as was also a second set of rails between Cambridge and Sandy and a second Standedge Tunnel of some three miles, and amongst other things a new goods depôt was opened at Derby.

It was during this year that the North-Western carried out an important agreement with the Metropolitan District Railway, with the view of obtaining an entrance into the City over the lines of the latter company. By the terms of this agreement, which was signed by William Caukwell

on behalf of the North-Western and by James Staats Forbes on behalf of the District, the North-Western agreed to pay to the District the sum of £100,000 in return for running powers over the District to Cannon Street Station, and separate station accommodation there. It was arranged that the North-Western should have the right to run as many trains as it liked not exceeding six in any one hour, in each direction between Kensington, Addison Road Junction and Cannon Street, and that these trains should stop to take up and set down at all stations local as well as through passengers. It was further arranged that the North-Western should pay to the District a mileage proportion of the through fares, and that the District Company should pay to the North-Western a shilling a mile for each mile run by the latter's trains in order to compensate the latter for carrying the former's purely local traffic. In June the North-Western started a service of trains running from Broad Street Station in the City, *via* Willesden, Kensington, Earl's Court, and back again into the City, *via* the District Railway, finally terminating at Cannon Street after having completed almost a complete circle, save for the short section between Cannon Street and Broad Street. A word of praise must here be accorded to the successive managements of the London and North-Western, which at an early date grasped the fact that the North-Western must have access to all parts of London, and with this end in view inaugurated a policy which has in this respect placed the North-Western in unquestionably the best position in the Metropolis. This position was gradually attained. First came the promoting of the North London, then the absorption of the West London and West London Extension Railways, then the leasing of the North and South-Western Junction, closely followed by the agreement with

the Metropolitan District. The result of all this was that by 1871 the trains of the North-Western were to be met with in almost all parts of the Metropolis.

But this agreement with the Metropolitan District Railway was not the only agreement which was receiving the attention of the Euston authorities, for about this time there was looming ahead the prospect of a complete amalgamation with the Lancashire and Yorkshire Railway. All over the two great northern counties the systems of the London and North-Western and Lancashire and Yorkshire Railways crossed and re-crossed each other at Manchester, Wigan, Preston, Bolton, Liverpool, Blackpool, Leeds and Huddersfield, to name only some of the places the two lines came in contact. In 1862, with a view to abolishing much needless competition, the two companies had come to an agreement which did away with much overlapping, and despite occasional grumbling from Lancashire and Yorkshire shareholders, who averred that the North-Western had obtained the best of the bargain and that the Lancashire and Yorkshire was tied to the Euston apron-strings, the agreement worked well for both parties. However, it was thought that a more complete union of interests was needed, and negotiations were opened for an amalgamation of the two companies, which resulted in a complete agreement being arrived at. The chief heads of the agreement were as follows: "As from the 1st of January, 1872, the two companies are to be united into one under the name of the London and North-Western and Lancashire and Yorkshire. All the property and rights of the two companies shall be vested in the united company. The preference stocks and shares of the two companies are to be charged upon the united undertaking. The ordinary stock and shares of the Lancashire and Yorkshire,

including those stocks and shares entitled to participate in ordinary dividend, are to be entitled until redemption to a dividend at the rate of 12s. 6d. per cent. per annum, in addition to taking dividend equally with the ordinary stock of the united company. The Directors of the two companies will form the United Board, the first Chairman being the Chairman of the London and North-Western, and the first Deputy Chairman the then Chairman of the Lancashire and Yorkshire. After the expiration of five years, the United Board must not consist of more than 30 Directors. For the purpose of combining the advantages of local management with through and uniform working of the whole undertaking, the management of the lines will, subject to the general control of the Board, be confided to two Committees, the one to have charge of the lines and property North of Crewe, and the other to have charge of the lines and property South of Crewe, including Crewe and the Holyhead section. The Committee having charge of the Northern Division is, in the first instance, to consist of not more than 24 Directors, 16 of whom are to be Lancashire and Yorkshire, and 8 London and North-Western, and when the Committee is reduced below 24 it will consist, as far as then practicable, of two-thirds Lancashire and Yorkshire, and one-third London and North-Western. The Committee having charge of the Southern Division of the amalgamated line will consist of not more than 24 Directors, 16 of whom will be North-Western, and 8 Lancashire and Yorkshire, and in the same way when they are reduced below 24 they are, as far as then practicable, to be two-thirds London and North-Western and one-third Lancashire and Yorkshire.

The United Board is to meet at London, Liverpool or Manchester, or such other places as

they may see fit, and the general meetings are to take place in London or Manchester.

An application is to be made to Parliament to carry out the amalgamation, and to be renewed as often as either company require.

Pending application to Parliament, a Committee is to be appointed, consisting of an equal number of Directors from each Board, to take charge of the application and any questions arising out of the amalgamation, the Chairman to be alternately the Chairman of the London and North-Western and of the Lancashire and Yorkshire.

The expenses attending the application to Parliament are to be borne by the United Company in the proportion, if it should need be, of two-thirds North-Western and one-third Lancashire and Yorkshire.

That as and from the 1st January, and pending the amalgamation, a traffic agreement shall be entered into for facilitating the working of the traffic of both lines, and for the division of the receipts of the two companies arising from traffic using both lines, or lines in which they are jointly interested."

Such were the chief heads of the agreement which provided for the amalgamation of the London and North-Western and Lancashire and Yorkshire Railways. Special meetings of the two companies were held on the 20th of October to consider the terms of the agreement, at which the amalgamation scheme was enthusiastically adopted, the following resolution being passed at both meetings:—"That this meeting approves of the amalgamation of the London and North-Western and Lancashire and Yorkshire, whereby the undertaking of the two companies, and all the railways, canals, rights, privileges, property, business and effects, whether joint or separate, may be vested in one company, and form one united

undertaking, upon the terms and conditions now submitted; and this meeting authcrises the Directors of {The L.N.W.R.} {The L. & Y.R.} to apply to Parliament for all such powers and all such authorities as shall or may be necessary for the purpose of carrying into effect the said amalgamation, when and as the Directors may see fit. And this meeting doth also, pending the application to Parliament, authorise the Directors of the company to enter into an agreement or arrangement that may seem expedient with {The L.N.W.R.} {The L. & Y.R.} with respect to the working and management of the undertaking of the two companies, and for the division of the receipts arising from the traffic using both lines or lines in which the two companies are jointly interested." All that was now needed to complete the amalgamation was the requisite Parliamentary powers, but the obtaining of these promised to be by no means an easy task. The amalgamation of the two companies promised to place most of the traffic of Lancashire and a large part of the Yorkshire traffic in the hands of a single company. An outcry was raised against this so-called monopoly, and numberless corporate bodies and Chambers of Commerce lodged petitions against the Bill. As might be expected, the proposal aroused a storm of railway opposition, nearly all the great companies appearing against the Bill, while some of these even composed their own differences and dropped their competitive schemes pending the result of the Amalgamation Bill. The London and North-Western and Lancashire and Yorkshire Amalgamation Bill brought the whole question of railway amalgamation prominently to the front, and a Select Parliamentary Committee was formed to enquire into the question. About

this time a wave of enthusiasm for railway amalgamation appears to have swept over the country, for in addition to the proposed amalgamation between the London and North-Western and Lancashire and Yorkshire, agreements for amalgamation were made between the Midland and the Glasgow and South-Western and between the Caledonian and the North British. The Parliamentary Committee at length reported against the principle of the amalgamation of large companies, and the London and North-Western and Lancashire and Yorkshire Amalgamation Bill was withdrawn. However, the matter did not end here, for in the following session the Bill was again introduced, but again the measure met with a torrent of opposition and after a severe struggle the Bill was thrown out. Had the Bill succeeded in passing through Parliament, it is hard to forecaste what would have been the result. The united company would have towered above its competitors in magnitude ; the public would have gained much in the matter of new services and the dovetailing of existing ones. Looking at it from the shareholders' point of view, there would unquestionably have been an enormous saving in management expenses, as, instead of two administrations with their duplicate offices, one united management would have worked the system, while at the same time the advantages of local management would have been retained by the Northern and Southern Committee formed to take charge of the two divisions of the united railway.

In completing the story of the projected amalgamation of the London and North-Western and Lancashire and Yorkshire Railways, we have strayed ahead somewhat and must now return to the year 1871. The North-Western Bill for 1871 contained powers for several new works, and agreements with the Brecon and Merthyr and London, Tilbury and Southend Railways, and also

contained borrowing powers for £1,898,539. The gross receipts for the year amounted to £7,487,054, and the dividend declared on the ordinary stock was the substantial one of $7\frac{3}{4}$ per cent., the highest dividend paid since 1847. It is somewhat interesting to note that at this period (to be strictly accurate at the beginning of the year) the North-Western owned 1591 locomotives, a stock far in advance of that of any other railway; the next greatest locomotive owner being the North-Eastern

FOR THE COMFORT OF NIGHT TRAVELLERS RUGS AND PILLOWS
ARE SUPPLIED.

with 935, followed by the Great Western with 929 and the Midland with 850. It is also interesting to note the number of express trains run by each railway, taking an express train to be a train that averages not less than 36 miles per hour, we find that the North-Western was second in the list with a daily average of 10·9 expresses over each mile of its line, the Great Northern being first with an average of 13·2 and the Midland third with an average of 10·2. These three companies were far

ahead of any others. Taking into consideration the vast size of the North-Western system, to be second on the list was, indeed, a very creditable achievement.

In September, 1871, Mr. J. Ramsbottom retired from the position of Locomotive Superintendent. Mr. Ramsbottom had originally been Locomotive Superintendent of the Manchester and Birmingham with headquarters at Longsight; in 1857 he succeeded Mr. F. Trevithick at Crewe as head of the Northern Division, and in 1862, on the retirement of Mr. McConnell from the Southern Division he was appointed to the position of Locomotive Superintendent for the whole line. The appointment of Mr. Ramsbottom proved to be an exceedingly successful one; on his retirement it was stated that, whereas when he went to Crewe the locomotive expenses were 10 $\frac{3}{4}$ d. per mile, by the time he retired he had reduced them to 7 $\frac{3}{4}$ d. per mile. But Mr. Ramsbottom's greatest achievement was undoubtedly the invention of the locomotive water pick-up apparatus, with which his name will ever be inseparably coupled. Soon after Mr. Ramsbottom's appointment, owing to the increasing distance which trains were booked to run without a stop, he was faced with the necessity of providing locomotives with greatly enlarged tenders in order to carry a sufficient water supply. This, of course, meant a large addition to the dead weight. As a substitute for this Mr. Ramsbottom conceived the idea of laying a long shallow trough between the rails and fitting the tenders with a scoop which would let down into the trough and take up water while the train was in motion. With this object in view, he started various experiments which proved so successful that in 1860 the first water troughs were laid on the Chester and Holyhead section near Conway. The pick-up water troughs were from the first a great

success, and were soon laid at various other parts of the system, while the practice has since been adopted by many other companies. At this point it might be of some interest to briefly refer to some of the chief locomotives constructed by Mr. Ramsbottom; but, as a preliminary it must be distinctly stated that neither does this work claim to be a complete locomotive history of the London and North-Western nor does the author claim to have any special technical engineering knowledge. One of Mr. Ramsbottom's first acts was to rebuild the *Cornwall*, Mr. Trevithick's Great Exhibition engine of 1851. This engine had 8 ft. 6 in. driving wheels and her boiler was underneath the driving axle, but as rebuilt the boiler appeared in the normal position, and in this form she continued to run until withdrawn in 1905. In 1862 Mr. Ramsbottom introduced an improved type of single express engine, one of which, *The Lady of the Lake*, was awarded the prize medal at the London Exhibition of 1862. These engines (the “ Problem ” class as they were called) were of the 2-2-2 type, with driving wheels 7 ft. 7½ in., and leading and trailing wheels 3 ft. 7½ in. diameter, outside cylinders 16 inches by 24 inches, a heating surface of 1,000 square feet, and a weight of 27 tons. At the end of the “ fifties ” and in the early “ sixties ” a change began to take place in the locomotive practice of the country. Previous to this the work of hauling express trains had been entrusted almost exclusively to locomotives with single driving wheels, but about this time locomotives with four-coupled wheels began to appear on various lines up and down the country. In 1866 Mr. Ramsbottom built at Crewe an engine of the 2-4-0 type. The first of this class was *Newton*, No. 1480, and had inside cylinders 16 inches by 24 inches and coupled wheels 6 ft. 6 in. in diameter. These locomotives were very successful, and altogether 96 of them

were built, some of them even being turned out at Crewe after Mr. Ramsbottom's retirement by his successor. As we have already recorded, in September, 1871, Mr. Ramsbottom retired, and the position of Locomotive Superintendent of the

THE 8-TON STEAM HAMMER PRESS, CREWE WORKS.

London and North-Western Railway was given to Mr. F. W. Webb, who from 1861 to 1866 had been works manager at Crewe, and who had latterly been manager of the Bolton Iron and Steel Company.

CHAPTER XII.

1872-1878.

THE RISE OF THE THIRD CLASS—THE GREAT NORTHERN AND LONDON AND NORTH-WESTERN RAILWAYS' JOINT LINES—GREENORE—THE EDGE HILL SORTING SIDINGS—THE WIGAN DISASTER—THE BRAKE TRIALS—THE CONSOLIDATION SCHEME.

Undoubtedly the chief event which occurred in the railway world during 1872 was the announcement made by the Midland Railway that on April 1st it would commence to convey third class passengers by all trains at Parliamentary fares. This announcement was made by the Midland Railway at the eleventh hour, and came upon the latter's competitors like a 'bolt from the blue.' Previous to this all express trains had been strictly confined to first or first and second class passengers only. Third class carriages at 'third class' fares had been run on a few trains, while those who had wished to travel third class at the 'Parliamentary' fare of a penny a mile had had to travel by the Parliamentary train, which the different companies were obliged by statute to run once each way daily over their lines. These trains stopped at every station.

Thus in reality there were practically four classes: first class, with a fare averaging about 2d. a mile; second class, with a fare of $1\frac{1}{2}$ d.; third class, with a fare slightly over 1d. a mile; and the Parliamentary fare of 1d. per mile.

The third class and Parliamentary passenger at this period, it must be confessed, fared very ill

indeed, although it is true that by this time the third class coaches were covered, yet they were far from comfortable, and as yet no attempt had been made to cushion the bare seats, whilst if a passenger wanted to travel by Parliamentary fare between London and Liverpool, he had to leave Euston at 7.40 a.m., and after spending a weary day in the train, stopping at every station *en route*, he was landed in Liverpool at 6.35 in the evening, thus taking almost eleven hours for the journey.

The lead of the Midland Railway was followed *volens volens* by its competitors, and third class passengers were soon able to travel by a large number of express trains. The London and North-Western Railway threw open many of its expresses to the third class passenger, but some were still reserved exclusively for the higher classes, notably the Irish Mail and the Scottish Limited Mail. The third class passenger undoubtedly owes a debt of gratitude to the Midland Railway, and the Midland Company unquestionably deserves great praise for its efforts for the amelioration of the third class passenger. We do not want to rob the Midland Railway of one iota of praise which is due to it, but it must be obvious to all that the Midland Railway is not a charitable institution, and that it did not do it from purely philanthropic motives. The Midland Railway had at this time recently opened its extension to London, and it was distinctly to its advantage to bring off a *coup* like this, which would attract traffic to the new route from the old-established and more direct routes of the London and North-Western and Great Northern Railways.

Several new lines were opened during the year. On January 1st the line between Huyton and St. Helens was opened for traffic, which provided a direct route from Liverpool to St. Helens and

Wigan, and shortened the distance between Liverpool and Preston and the North.

In February there was opened for passenger traffic a line from Winwick to Golborne, which greatly facilitated and improved the working of the main line traffic between North and South. A short distance to the west of Newton station the old Grand Junction line joined the Liverpool and Manchester line, while a little to the east of the station the old North Union Railway diverged on its way northwards. Thus all trains passing between North and South had to encounter two junctions and proceed for a short length over the crowded Manchester and Liverpool section. This was found to be inconvenient and to lead to delays, and so the Winwick-Golborne line was constructed, which, leaving the Grand Junction section south of Newton, rejoined the North Union section north of Newton, thus giving main line trains a clear run and superseding the use of the busy part of the Liverpool and Manchester section.

On October 2nd there was opened an important section of line connecting Chester with Whitchurch. This line provided the London and North-Western Railway with a direct route between Chester, Birkenhead and North Wales, and Shrewsbury, Hereford and South Wales, and enabled the London and North-Western to compete for traffic which previous to this had been practically a monopoly of the Great Western Railway.

On November 1st there was opened by an independent local company a line between Wolverhampton and Walsall, the working of which was undertaken by the London and North-Western Railway. This Wolverhampton and Walsall Railway had rather a curious career; incorporated in 1865 it was opened in 1872, and worked by the London and North-Western. This continued until 1875, when the Wolverhampton and Walsall

Company was definitely vested in the London and North-Western, only, however, to be sold during the next year by the latter to the Midland Railway.

At this period a large scheme of extension was taking place at Euston Station. The original station had been added to piecemeal as occasion warranted, but as the traffic still continued to outgrow the accommodation, the directors, in 1870, decided on a scheme for large additions and improvements to the old portion of the station. These works were accordingly taken in hand, and in 1871 a new approach to the station from the New (now Euston) Road was opened, and this road, which was cut through Euston Square Gardens, greatly improved the accessibility of the station. Undoubtedly the most interesting feature of the works was the improvement of the old portion of the station. Most people are aware of what the roof at Euston looks like; it is a glass roof, somewhat like a shed, supported on iron columns. The original station was built on this system, but the roof was found to be somewhat low, and so at the time of the alterations it was decided to heighten it. This took place during 1872, and was carried out by Mr. William Baker, the Company's engineer, in an extremely clever manner. The whole roof was raised by hydraulic power, and the desired additional height was obtained by placing iron pedestals at the bottom of the columns. The feat appears all the more remarkable when one knows that this was carried out without in any way interfering with the regular work of the station. The whole of the improvements and extensions at Euston were not brought into use until 1874.

The North-Western's Parliamentary Bill for 1872 contained powers for several new works and lines, chief of which were a new line at

Watford, $1\frac{3}{4}$ miles; Wapping Tunnel Branch at Liverpool, 4 chains; Guide Bridge (near Manchester) Junction line, $1\frac{1}{8}$ mile; and a narrow gauge (2 feet) line between Bettws and Festiniog, in North Wales. In addition to these lines, the Bill contained various other powers for the purchase of lands and agreements with the North London, District, and Great Eastern Railways. In all, the Company was authorised by the Bill to raise new capital to the extent of £900,000, with loans amounting to a further £300,000.

Before we finally finish with the year 1872, it may be of some interest if we glance at the train service in operation at this date between London and the chief cities of England and Scotland. Between London and Birmingham, a distance of 113 miles, there was one train performing the journey in $3\frac{1}{4}$ hours, but the other trains took considerably longer. Between London and Manchester, $188\frac{3}{4}$ miles, the quickest train took 5 hours, while between London and Liverpool, $201\frac{3}{4}$ miles, the quickest train performed the journey in $5\frac{1}{4}$ hours, but $5\frac{1}{2}$ to 6 hours was about the average for most expresses. The 10 o'clock train from Euston, the best train to Scotland, arrived at Edinburgh at 9.10 and Glasgow at 9.30 p.m., thus taking 11 hours 10 minutes and $11\frac{1}{2}$ hours respectively.

It is of some interest, as showing the great development of Crewe works, to note that during the twelve months ending the 30th November, 1872, no less than 146 locomotives were built at the Crewe works.

For the second half of 1872 the gross receipts for the first time exceeded four millions, the receipts for the two half years being £3,735,943 and £4,275,154. The dividend on the ordinary stock was at the rate of $7\frac{3}{4}$ per cent. per annum.

The year 1873 witnessed a great Parliamentary

campaign waged between the London and North-Western and the Great Northern on the one side, and the Midland and Manchester, Sheffield, and Lincolnshire on the other side. The district for which the companies struggled was situated in Northamptonshire, Rutland, Leicestershire, and Nottinghamshire, and lay between the main lines of the Great Northern and Midland Railways. This district was badly off in the matter of North and South communications, and lines passing through it had been more than once projected. In 1871 the Manchester, Sheffield, and Lincolnshire had proposed a line from Doncaster to Market Harborough, running through the centre of this district, and had even approached the London and North-Western with a view to the latter joining it in the project. The latter had, however, refused to participate.

The "Sheffield" did not proceed very far with its Bill, for it came to an arrangement with the Midland, by which it was arranged that the two Companies should withdraw for the session all their projects (excepting the Nottingham and Saxby line of the Midland) pending the result of the London and North-Western and Lancashire and Yorkshire Amalgamation Bill. The Great Northern refused to withdraw its projects and promoted a Bill for a Newark and Leicester line. This came before Parliament early in 1872, and although not successful in its entirety, the portion between Newark and Melton Mowbray was successful in passing through Parliament, the Melton-Leicester portion being excised.

Before the next session came round the Great Northern approached the London and North-Western with a scheme whereby the Newark and Melton Mowbray line should be extended southwards to Market Harborough and the whole line constructed jointly by the two Companies. This

scheme was favourably received at Euston, and the result was that for the session of 1873 a joint Great Northern and London and North-Western Bill was lodged, providing for a joint line between Market Harborough and Newark. But the London and North-Western and Great Northern were not to be allowed to have the field all to themselves, for there was a rival in the field. We have already

THE PARK HOTEL, PRESTON, BELONGING TO THE LONDON & NORTH-WESTERN AND LANCASHIRE & YORKSHIRE RAILWAYS.

stated that in 1871 the Manchester, Sheffield and Lincolnshire approached the North-Western with proposals for the joint ownership of a projected line from Doncaster to Market Harborough; the Bill for this line was afterwards withdrawn by the "Sheffield" pending the result of the Lancashire and Yorkshire and North-Western amalgamation

scheme. Having been repulsed in its advances to the North-Western, the "Sheffield" next turned its attentions to the Midland, and in this direction it was completely successful, the result being that for the session of 1873, the Manchester, Sheffield and Lincolnshire and Midland jointly promoted a Bill for a line from Askerne, near Doncaster, to Rushton, a station on the Midland main line between Kettering and Market Harborough; the total length of this projected line was 115 miles, and the estimated expenditure was about £2,700,000. Thus there were two schemes for a line through the same country promoted by four important companies. The rival Bills provoked a great Parliamentary battle, and after a hearing of over thirty days before a Commons Committee, the chairman announced the Committee's decision, which awarded the victory to neither party; the Bill for the Great Northern and North-Western joint line was thrown out, whilst of the great trunk line of the Midland and "Sheffield" two small isolated fragments only were passed. These had yet to pass through the House of Lords and this proved fatal to one of the sections, whereupon the Midland and Sheffield withdrew what was left of their "wonderful scheme." To anticipate matters a little it may here be stated that in the next session (1874) the London and North-Western and Great Northern revived their scheme, but the Midland and the "Sheffield" did not again bring forward their joint project, and the North-Western and Great Northern Bill, despite the keen opposition of the Midland, succeeded in passing through Parliament, the Bill providing for the vesting in a joint Committee of the two Companies of the lines between Bottesford and Market Harborough, in all some 45 miles. By the terms of the agreement between the two Companies the Great Northern gave the North-Western running powers

from Radcliffe into Nottingham and from Bottesford to Newark, while the North-Western gave the Great Northern running powers from Market Harborough southwards to Northampton, and from Market Harborough eastwards to Peterborough, as soon as the missing link in the latter route, between Seaton and Wansford, was filled in. Thus the London and North-Western secured a good main route between the south and a large part of Leicestershire, an entrance into the important town of Nottingham, also into Newark, and access *via* Nottingham to the great Nottinghamshire and Derbyshire coalfields.

Though unsuccessful, as we have seen, in the session of 1873 with its joint Bill with the Great Northern, the London and North-Western was nevertheless successful in obtaining several important Acts of Parliament. These were as follows: New Works, etc., capital £1,000,000, loans £333,000; widenings on Liverpool and Manchester and improvements at Lime Street Station, Liverpool, new capital £1,440,000 and loans £480,000; various powers in connection with other Companies; use of portion of Festiniog Railway; subscription of £25,000 to the Oldham, Ashton and Guide Bridge Railway; vesting of the St. George's Harbour, Llandudno, capital £1,000,000 and loans £333,000; enlargement of Holyhead Old Harbour, capital £160,000, loans £53,000. Besides these Acts the North-Western jointly with the Caledonian secured Parliamentary powers to construct new works at Carlisle Citadel Station. By this Act it was arranged that the Glasgow and South-Western, the Maryport and Carlisle, the Midland, the North British, and the North-Eastern Railways were to have accommodation in the Citadel Station, and that there was to be a Station Committee, consisting of two directors of each company, with the exception of the Maryport

and Carlisle. For the purpose of this Act the North-Western and Caledonian were each empowered to raise £120,000, with an additional sum of £40,000, on mortgage.

The most important new opening during 1873 was unquestionably that of the new route to the North of Ireland, *via* Holyhead and Greenore, which the North-Western inaugurated during the year. The opening of this route still further strengthened the hold which the North-Western had on the Irish traffic, and in this respect its position was now well-nigh unassailable, for it already possessed by far the quickest and best route to Dublin and the South of Ireland, *via* Holyhead, and also the quickest route to Belfast, *via* Fleetwood, while the opening of the Greenore route provided it with yet a third first-class route to Ireland. In connection with the development of the Greenore route the North-Western financed the Dundalk and Greenore Railway, formed to connect the port of Greenore with the Irish North-Western at Dundalk. The working of this line was undertaken by the London and North-Western, and for this purpose a supply of rolling stock made for the Irish gauge of 5 ft. 3 in. was constructed at Crewe and sent across to Ireland. In order still further to improve the Greenore route, during this year (1873) the Dundalk and Greenore obtained powers to construct a new line, some 12 miles in length, from Greenore to Newry, which promised to shorten the distance from Greenore to the North of Ireland; at the same time the name of the company was changed from the Dundalk and Greenore to the Dundalk, Newry and Greenore.

But this does not exhaust the list of developments which took place at Greenore, for the North-Western constructed there a large and up-to-date hotel, which was opened during the year. On the 1st of May, 1873, the Greenore

route was opened for public traffic, and the opening was celebrated by a great banquet at Greenore, at which the Lord-Lieutenant of Ireland was present. The inaugural service was as follows: Euston, depart 5.10 in the afternoon; Belfast, arrive 11 o'clock next morning; and in the reverse direction—Belfast, depart 4.50 in the afternoon, and arrive Euston at 9.50 in the morning. The sea passage occupied under six hours. The boats put on the service were the *Eleanor*, the *Isabella*, and the *Earl Spencer*, which possessed speeds of about 14 or 15 knots.

Other important openings taking place during the year included the Runcorn and Frodsham line, opened on the 1st of May, which provided a new all-rail route between Liverpool and Chester and North Wales, and the London and North-Western and Midland Joint Ashby and Nuneaton line, which was brought into use on the 1st of September. On the 1st of July there was opened the line of a small independent railway, the East and West Junction, extending from Greens Norton Junction, on the Northampton and Banbury Railway, to Stratford-on-Avon; and during the year a through service was inaugurated between Euston and Stratford, *via* Blisworth, which saved nearly 10 miles in distance between London and the birthplace of the Immortal Bard when compared to the rival route of the Great Western Railway.

In the course of this year, as we have already recorded in an earlier chapter when dealing with the invasion of South Wales, the London and North-Western took over from the Swansea and Carmarthen Railway the Swansea lines of the latter Company, and thus secured a route of its own to, and a terminus at, Swansea, on the South Wales Coast.

It was during this year that the Company began to turn its attention to the question of the

congestion of the traffic at Edge Hill. Edge Hill is a junction situated in Liverpool about $1\frac{1}{2}$ miles from Lime Street, whence numerous lines diverge to all parts of Liverpool, and where all the Liverpool goods traffic is sorted and marshalled. At this period it was found that the "outwards" traffic at Edge Hill had grown from 257,025 tons in 1850 to 1,032,853 tons in 1873, while in the same period the siding accommodation had only increased from 1,782 wagons to 3,215 wagons. Under these circumstances it is no wonder that the congestion at Edge Hill had become a pressing question, and that the need for fresh accommodation had become a manifest necessity. Accordingly, a scheme was prepared by Mr. H. Footner, one of the Company's engineers, for marshalling the wagons by gravitation. This scheme was adopted by the Company, and we cannot do better than quote the description of it given by the late Sir George Findlay in his book on "The Working and Management of an English Railway": "At the period mentioned (1873)," says Sir George Findlay, "it became necessary to consider seriously how the difficulties were to be met, for, in addition to the want of room, the main passenger lines had to be crossed every time wagons were moved from one group of sidings to another (and there were a great many groups), so that there were serious obstacles to be encountered in carrying on the working, and as the safety of the passenger trains always had to be the first consideration, the goods traffic had often to suffer delay. The company had, at that time, about 70 acres of spare land on the north side of the railway, and available for extension, but to reduce this to the level of the main lines would have involved a stupendous amount of excavation, and the fact that the surface of the land rose from West to East, and that, for a comparatively reasonable outlay, sidings could be

laid upon it on an uniform gradient which would enable them to pass over the branch line running round to the docks, which branch line intersected the land, suggested to Mr. Footner a scheme for marshalling by gravitation. In considering a scheme of this kind two things appeared to be essential—first, that in the passage of the trucks from the top to the bottom of the incline, all the necessary changes in their relative positions should be effected, so that when they reached the bottom they should be ready to go away as properly marshalled trains; and secondly, that there should be some means of stopping, without injury to them or their loads, any trucks which might get beyond the control of the shunters. The mere principle of shunting by gravitation was no new thing, as it had already been successfully adopted for coaling ships on the Tyne and for sorting mineral trains at Darlington on the North-Eastern Railway; but Mr. Footner claims as his own the idea of an inclined plane specially constructed in such a way as to sort and marshal a mixed goods train by gravitation alone, without any assistance from locomotive or horse power. The sidings consist of, first, the six upper reception lines at the summit of the incline, holding 294 wagons; secondly, the sorting sidings, 24 in number, capable of holding 1,065 wagons, into which the wagons, when separated, first run, each siding receiving the wagons for a particular train; thirdly, two groups of marshalling sidings, which, owing to their peculiar formation, have been christened ‘grid-irons,’ through which the trucks are filtered so as to make them take their proper order of precedence in the train; and, fourthly, the lower reception and departure lines, which receive the trains in their complete state, and where the engines are attached to take them away. The *modus operandi* is as follows:—On the arrival of a set of wagons

in the upper reception lines, the rear brakes are put on, the engine is detached, and then on each wagon is chalked the number of the sorting siding it has to enter. One man carefully inspects the brakes of each wagon, and calls out the chalked number to a second man standing below him, who has to regulate the speed of the descending wagons ; this second man passes the number on by hand signal to the shunter lower down who has charge of the points, and who, by moving a lever, turns the wagon into its proper siding. The shunters are provided with brake sticks, which they insert between the wheel and the wagon frame to steady the wagons in going down, and they also use these implements for letting down the brake levers when required. By the process thus described, each sorting siding now holds a separate train, although the wagons composing it are in indiscriminate order, but by a repetition of the operation the wagons of each train are separated in the gridirons, and are lowered, one by one, into the departure lines, in the precise order in which they are required to be sent away." By Mr. Footner's gravitation system of marshalling, the congestion at Edge Hill was entirely done away with ; from their opening the sorting sidings at Edge Hill were very successful and completely solved the problem of how to deal with the enormous traffic of the port of Liverpool.

A minor change in the locomotive practice of the company took place during the year (1873). At this time the standard colour for the company's locomotives was green, but from this time forward black became the standard colour. It must be confessed by all that black is not a very striking or handsome colour, with which to paint locomotives, and many people have often wondered why the North-Western adopted it, but the question of cost probably had something to do with it. There

is a legend (the truth of which is not guaranteed) that Mr. Caukwell, who was somewhat of an autocrat, while discussing one day with Mr. Webb the question of the colour of the locomotives, remarked: "I like all my head officers to personally decide matters relating to their departments. Now, as Locomotive Superintendent, you have to decide what colour the engines are painted. It's a matter I don't want to be troubled about, so, as long as it's black, I do not mind what colour you choose for them." Another amusing story is told with regard to the colour of North-Western engines. One day at the Institute of Civil Engineers, Mr. Webb was being chaffed about the cheap appearance of North-Western engines by the Locomotive Superintendent of a rival line, when the former remarked to the latter that when the Shareholders of the North-Western were receiving a regular dividend of 10 per cent., he would then be quite willing to cover the locomotives with gold leaf.

During this year the Railway and Canal Traffic Act was passed by Parliament, under the terms of which three Railway Commissioners were appointed, whose duties were to decide matters in dispute between railway companies or between railways and canals, or between railways and private individuals or societies, and also to settle the question of through rates and facilities over the lines of two companies where the lines formed a through route, and when one of the companies objected to the granting of facilities to the other. This was not the only Act affecting railways passed during the year, for an Act, introduced by the Board of Trade, was also passed which made working on the block system and the interlocking of points and signals compulsory on all railways. Interlocking, as has already been recorded, was first introduced on the North-Western in 1859, and by this date a large part of the system had been

Photo] STANDARD GOODS TRAIN, NEAR LUXTON JUNCTION, HAULED BY 4-6-0 GOODS LOCOMOTIVE. [*Mr. H. Gordon Tidy.*

equipped with it. At this time all the signal department of the railway was constructed and maintained by contract by private firms, chief of which was Messrs. Saxby & Farmer, but in the course of this year the company took over the work into its own hands, and henceforward the signal work was performed at Crewe.

That interlocking was

not an infallible cure for abolishing railway accidents was proved by an accident which occurred at Wigan, where, despite a complete system of interlocking, an express while running at full speed was for some unexplained reason derailed. On 1st of August the 8.0 p.m. *ex* Euston north express, which was composed of two locomotives and twenty-five coaches, was running through Wigan at full speed, when the sixteenth carriage became derailed, broke away, turned to the left, and, together with the succeeding portion of the train, became a complete wreck. The two locomotives and the first fifteen coaches escaped entirely, many of the passengers in them went on sleeping peacefully, quite unaware of the carnage among the splintered *debris* which they had left behind them at Wigan, and it is on record that Mr. Houghton, the Assistant Goods Manager of the North-Western, who was travelling in the front portion of the train, knew nothing about the disaster until he read it in the newspapers in Scotland next day, and his experience was probably shared by many other passengers. The back portion of the train, as we have already said, was completely wrecked and ten passengers lost their lives. The cause of the accident was almost inexplicable, but it was thought by some that in some way the sixteenth coach must have fouled the facing points which led to the loop platform. The signalman swore he had not touched them, and in this he was borne out by the fact that the leading signal was not at "Danger" at the time of the accident, which was testified by independent witnesses. The theory of fouling the facing points was further discounted by the fact that the tongue of the facing point bore no marks upon it. A long enquiry followed, at which many of the chief officers of the North-Western and officials from other lines gave evidence.

Eventually, it was decided to equip in the future all important junctions with "facing point locks," and the President of the Board of Trade sent a circular letter around to the various railways urging them to adopt every measure for the safety of passengers.

For the first half of 1873 the receipts were £4,038,708, and for the second half they were £4,572,030, an increase of nearly three hundred thousand over the corresponding period of the preceding year, which was itself a record half year. The dividend on the ordinary stock for the year was at the rate of $7\frac{1}{2}$ per cent.

The year 1874 was not a very fruitful one in the matter of new openings on the North-Western system, perhaps the most important was that of the Harborne Railway, a short line of some three miles, constructed by an independent company, from the North-Western at Monument Lane, Birmingham, to the town of Harborne, which was opened for traffic in August and which was worked by the North-Western. Apart from this the only other opening during the year worthy of note was the commodious new passenger station, erected in Great Moor Street, Bolton, the opening of which took place in October.

On the 1st of February the London and North-Western and Caledonian inaugurated a service of sleeping saloons between London and Glasgow. These saloons were 33 feet in length, the longest length permitted on the line at this date, and provided sleeping accommodation for twelve passengers, four females and eight males. The saloon consisted of three compartments, each of which provided accommodation for four sleepers; in each of these the ordinary seats were so constructed as to be convertible into two beds at night, while two more beds were formed above these by means of a sort of shelf which let down from

the wall. Although this was the first regular service of sleeping saloons on the North-Western, a sleeper had been running on the line since the preceding October; the saloon ran backwards and forwards between London and Glasgow, performing the journey each way three times a week, and was more or less in the nature of an experiment; the experiment, however, was a complete success, with the result that the present service was instituted as soon as new saloons could be constructed. This service also, despite the extra fare of ten shillings which was charged for the use of the sleeper, was a complete success, with the result that the following year sleeping saloons were placed on the London-Holyhead and the London-Liverpool services.

If we except the joint arrangements between the London and North-Western and the Great Northern, already referred to, the session of 1874 was not a very important one from the North-Western point of view. Apart from the joint Bill, the Company obtained two Acts of Parliament, one for further powers respecting the undertakings in Wales, with new capital powers for £330,000 and new loans for £110,000, and the other for divers further works in England and Ireland with fresh capital powers to an amount of £800,000 with a further £399,200 on loan.

During this year Mr. William Caukwell, who had been general manager of the Company since 1858, gave up the more active duties of the position, though he still retained an office at Euston, where he nominally supervised the working of the line; a new office, that of Chief Traffic Manager, on which most of the general manager's duties devolved, was created, and to this important post was appointed Mr. George Findlay, then chief goods manager, who continued in this position until Mr. Caukwell resigned all official duties in

1880, when Mr. Findlay became General Manager in name as well as in fact. On Mr. Findlay's taking up the duties of Chief Traffic Manager, he was succeeded in the office of Chief Goods Manager by Mr. T. Kay.

Although the gross receipts for both half-years showed an increase over those for the corresponding halves of the preceding years, the dividend showed a reduction, being at the rate of $6\frac{1}{8}$ per cent. per annum, as compared to $7\frac{1}{2}$ per cent. for 1873.

The year 1875 was almost as unfruitful as its predecessor in the matter of extensions to the North-Western system. On the 1st of April a new and shorter route was opened between Manchester and Bolton *via* Little Hulton; and by Act of Parliament of the 29th June the Newport Pagnell Railway was vested in the London and North-Western. The Newport Pagnell Railway was a short line of some four miles which had been incorporated in 1863, with a capital liability of some £60,000, to construct a line from Wolverton to the town of Newport Pagnell, and which had been opened in September, 1867.

Several new train services were inaugurated during the year. In January the North-Western service running between Shrewsbury and Hereford was extended southwards from Hereford over the Monmouthshire Railway into Newport, thus providing this important cross-country service with a terminus on the Bristol Channel; in May a through service was started between Willesden and Croydon *via* the West London and the London, Brighton and South Coast Railway; while in July the Willesden-Waterloo service, which had been discontinued, was once again resumed, and proved a most useful connecting service between the North-Western and South-Western and South-Eastern Railways.

Towards the end of the previous year (1874) the Midland Railway, following up its previous coup of third class by all trains, had given notice that on the 1st January, 1875, it would abolish second class carriages on its system, and at the same time reduce its first class fares. This announcement, like the previous one regarding third class by all trains, came upon the other railways unexpectedly, and great was the pressure brought to bear on the Midland to induce it to withdraw its announcement; conferences were held at Euston, but all were of no avail, the Midland was adamant. On the 1st of January, therefore, the Midland abolished second class from its system and brought into operation its revised fares, a proceeding which forced competing companies to reduce their first class fares to the same level as the Midland's. The London and North-Western, while of a necessity revising its first class fares, did not, however, follow the Midland's lead with regard to the second class, for, as the late Sir George Findlay, writing on this question, remarks: "The London and North-Western Company maintained the belief that society in this country, for all purposes, naturally divided itself into three classes, and that the wants and tastes of the community were best served by their present practice, in which belief, apparently, they were supported by the great body of railway opinion in the country, since no other company has until recently followed the example of the Midland Company." It is interesting to note in passing, that practically all companies have now followed the Midland's lead; second class survived on the North-Western system until 1911, when it was withdrawn all over the system except in the London suburban district.

A question which was at this time receiving a good deal of attention both at the hands of the

different railway companies and at the hands of the Government, was the question of railway brakes. It was thought by a good many persons that the adoption of a continuous automatic brake throughout the length of the whole train, which would be self-acting in the case of the train breaking in two or any other mishap, would considerably lessen the number of railway accidents. Accordingly a Royal Commission on Railway Accidents was appointed by Parliament, whose duties were to enquire into the chief causes of railway accidents, and to report on the various systems of brakes. As the best means of accomplishing the latter the Commission decided to hold a series of brake trials. The trials were arranged for June (1875), and the spot selected was a section of the Midland Railway between Newark and Rolleston Junction ; the members of the Royal Commission present were the Duke of Buckingham, Lord Aberdeen, Mr. Ayrton, Mr. Galt, Mr. T. E. Harrison, the Chief Engineer of the North-Eastern Railway, Col. Inglis, and Mr. Woods ; whilst Col. Yolland, R.E., and Col. C. S. Hutchinson, R.E., Inspectors from the Railway Department of the Board of Trade, were also present on behalf of the latter body. There were eight competitors : the London and North-Western train was equipped with Clarke and Webb's chain brake ; the Midland had three trains fitted with three different systems, one with Westinghouse brake, one with Barker's hydraulic brake, and one with Clarke's hydraulic brake ; the Great Northern was fitted with Smith's vacuum ; the Caledonian had Steel's air brake ; the Lancashire and Yorkshire, Fay's patent brake ; and the London, Brighton and South Coast, the Westinghouse vacuum. On the first day of the trials the North-Western train made the first journey, but, unfortunately, when the brake was put on the train broke in half. Next day, however, another

attempt was made, this time with more success, for when running at 49 miles per hour the train was pulled up in 23 seconds within a distance of 326 yards. The Midland train, fitted with the Westinghouse air brake, which was here tried for the first time on any English railway, whilst running at $51\frac{1}{2}$ miles per hour was pulled up in a distance of 275 yards in the course of 18 seconds.

The deliberations of the Royal Commission on Railway Accidents, like the deliberations of most Royal Commissions, ended in nothing very definite. In August, 1877, however, the Board of Trade made representations to the different Railway Companies, urging upon them the advantages to be derived from a standardised brake, and at the same time stating what in their opinion were the requisites of a good continuous brake, which were as follows: Efficient in stopping trains; instantaneous in action, and easily applied by engine drivers or guards; in case of accident instantaneously self-acting; capable of being put on or taken off with facility, on the engine, tender, and every vehicle of a train, regularly used in daily working, and the materials employed easily maintained and kept in order. After the trials at Newark the North-Western went on fitting their stock with the Clarke and Webb Brake, but this did not carry out the recommendations of the Board of Trade, and so in the early "eighties" the North-Western began fitting its stock with the simple vacuum, but this proved to be an unfortunate choice, and in 1886 the North-Western decided to adopt the automatic vacuum brake. To anticipate matters a little, it may be recorded here that in 1889 an Act of Parliament was passed which gave the Board of Trade power to call upon all railways to fit all trains carrying passengers with some form of automatic continuous brake.

The North-Western had two Bills in Parliament

traffic. The line was, however, never a financial success and on 1st July, 1876, the London and North-Western purchased it for the sum of £80,000. The other line which the North-Western absorbed during the course of the year, the Sirhowy, was originally incorporated as a tramroad company by Act of Parliament 42 Geo. III., cap. 115. By Acts of Parliament passed in 1860 and 1865, the line was entirely remodelled and its name changed from the Sirhowy Tramroad to the Sirhowy Railway. The line was $15\frac{1}{4}$ miles in length, and extended from Nantybawch, on the Merthyr, Tredegar, and Abergavenny Section of the North-Western, through Tredegar to a junction with the Monmouthshire Railway at Nine Mile Point, whence to Newport ran the latter line. The capital of the company consisted of £105,000 ordinary shares, £72,000 preference stock, and £56,633 debenture debt. The line became vested in the North-Western on the following terms:—The debentures of the Sirhowy to be exchanged for a like amount of London and North-Western debenture stock; the preference stock of the Sirhowy for a like amount of London and North-Western 5 per cent. rent-charge stock, and the ordinary shares of the Sirhowy for a like amount of London and North-Western 10 per cent. rent-charge stock.

Several new openings took place this year. On the 1st of June a new dock of 8 acres was opened by the North-Western at Garston on the Mersey, where the North-Western already owned a dock which it had taken over in 1864 with the St. Helens Railway; and on 1st August the line of the Dundalk, Newry and Greenore Railway (which was practically part of and worked by the North-Western), between Greenore and Newry was opened for traffic, which considerably shortened the distance between Greenore and Belfast and the North of Ireland.

During this year the quadrupled lines between Stafford and Crewe were brought into use, and this greatly facilitated the working of the traffic. Previous to this, this section had been responsible for many delays; at Crewe the lines from Chester and Holyhead, from Manchester and Leeds, from Scotland and the North, and in practice the Liverpool line also, all converged at Crewe from the North, while at Stafford the main line to London and the Birmingham line diverged to the South. Thus all the North and South trains passing between these different sections had to use the two pairs of rails between Stafford and Crewe. Under these circumstances it is not surprising that delays on this section were not infrequent. These were, however, immediately done away with on the opening of the two extra pairs of rails.

An arrangement was made between the North-Western and the Northampton and Banbury Railway, and approved by the Railway Commissioners, by which the North-Western agreed to supply locomotives and rolling stock for the working of the line at a fixed charge per train mile. The arrangement came into operation on 1st November. The Northampton and Banbury Junction was a railway of some 20 miles, extending from Blisworth to Farthinghoe. In the past it had harboured ambitions of becoming a great cross-country trunk line, and had even secured powers for extending its line through Chipping Norton to Ross, and actually changed its name to the 'Midland Counties and South Wales Railway.' The work of constructing its original line, however, used up all its energy and resources; it reverted to its original name again, and, as we have already recorded, came to an arrangement with the North-Western for the working of its line.

This year both the Scottish and Irish services were considerably improved. The 10 o'clock (a.m.)

Scottish express *ex* Euston, which was one of the few surviving trains which did not carry third class passengers, was thrown open to the 'humble third class,' while at the end of the year 'third class' accommodation was also provided on the Scottish 'Limited Mail.' These concessions were no doubt partly due to the opening of Midland's Settle and Carlisle line, which was opened for passenger traffic on the 1st of May. The opening of this line meant that there were now three competitive routes in operation between London and Scotland, while the Midland now entered into competition with the North-Western for the traffic between many large provincial towns and Scotland. However, at all points, the Midland was at a disadvantage, for its route was considerably longer than the North-Western's.

The Irish service also received attention at the hands of the North-Western this year. Two large new passenger boats, the *Rose* and the *Shamrock*, each of 1,200 tons and with a speed of 15 knots, were built and placed on the Holyhead-North Wall service, and on the 1st July, in connection with these boats, a new service was inaugurated between London and Dublin, leaving Euston at 9 o'clock in the morning and arriving at North Wall, Dublin, at 10 in the evening, Dublin time, which it should be remembered is twenty-five minutes behind Greenwich time. In the reverse direction the boat left North Wall at 9.30 a.m. and arrived at Euston at 10.40 p.m. At this time it should be said the Irish Mail, *via* Holyhead and Kingstown, did not convey third class passengers, but from its start this new service *via* North Wall catered for the third class, and so for the first time there was a 'real express' third class service provided between London and Dublin.

During this year the company bought from Lord Crewe the Crewe Arms Hotel, and took over

the working and management of it. The hotel, which adjoined the railway station at Crewe, had been leased by the company since the year 1864, but it had sub-let it to a contractor. A well-managed and comfortable hotel at such a centre as Crewe, the hub of the system, was thought to be a necessity, and so, as we have just said, the company took the management into its own hands.

During this year the High Peak Branch, which was chiefly remarkable for its terrific gradients worked by stationary engines, was closed for passenger traffic, although goods traffic still continued to be conveyed along it.

The North-Western Bill for 1876 provided for the following : New junction, Ashton Branch, $\frac{1}{4}$ mile ; new line at Winsford, $1\frac{1}{4}$ miles ; new line, Leigh's Wood, $1\frac{3}{4}$ miles ; further subscription of £50,000 to the Oldham, Ashton and Guide Bridge Railway ; powers to the Dundalk, Newry and Greenore Railway to raise new capital amounting to £51,000, and a further £16,800 on loan ; extension of time for completion of Dewsbury line and Festiniog line ; and incorporation of a Great Northern and London and North-Western joint committee. The receipts for 1876 were £4,357,191 for the first half and £4,770,676 for the second half, both half years showing a slight increase for the corresponding previous half years ; and the dividend was at the rate of $6\frac{5}{8}$ per cent. per annum.

In the course of the year 1877 the London and North-Western absorbed the Whitehaven, Cleator and Egremont Railway, an important local system in Cumberland. The Whitehaven, Cleator and Egremont had been incorporated in 1854, with a capital of £50,000 and loans of £166,000, to construct a line from the Whitehaven and Furness Junction Railway at Whitehaven to the town of Egremont, $4\frac{1}{2}$ miles, with a branch of 2 miles to Frizington. Various extensions were afterwards

authorised, including extensions northwards from Frizington to a junction with the Cockermouth and Workington, and southwards from Egremont to Sellafield, the latter line being joint with the Whitehaven and Furness Railway. By various Acts of Parliament the capital of the company was greatly increased. By Act of 28th June, 1877, it was arranged that from 1st of July the Whitehaven, Cleator and Egremont should be vested in the North-Western and that the shares of the Whitehaven Company should be exchanged for shares of the North-Western to be called London and North-Western (Whitehaven, Cleator and Egremont) stock, bearing perpetual dividends at 5 per cent. per annum, in lieu of the Whitehaven preference, and 10 per cent. per annum in lieu of the Whitehaven ordinary. To anticipate matters a little it may here be stated that by a London and North-Western Act passed during the next year, the Whitehaven, Cleator and Egremont line was vested in the North-Western and Furness Railways jointly, and it was arranged that the Furness Railway should raise capital and contribute their moiety of the conditions of purchase, that the two companies should have equal rights over the line, and that a joint committee should be appointed for the management of the line.

On the 1st October the London and North-Western opened its North Wall Extension line in Dublin, which connected North Wall with the system of the Great Southern and Western Railway, and by providing rail accommodation from the steamer's side to the Kingsbridge terminus of the latter railway, did away with "cabbing" across Dublin, and so greatly improved the Holyhead North Wall route to the South and West of Ireland; again to anticipate a little it may here be recorded that the next year the North Wall route was further improved by the opening of rail

connections between North Wall and the Amiens Street terminus of the Great Northern and the Broadstone terminus of the Midland Great Western. Thus North Wall was placed in direct rail communication with all parts of Ireland.

An interesting feature of the year's working was the introduction of a fixed hourly service of trains between Manchester and Liverpool, commencing at 9 in the morning and ending at 8 in the evening. The Manchester and Liverpool traffic was perhaps at this time the most fiercely competitive of any traffic in England, for in addition to the North-Western's two routes between the two cities, the Lancashire and Yorkshire and Cheshire Lines Railways also owned routes and worked a generous system of express trains between the two cities.

In the course of this year the repairing of locomotives was finally given up at Wolverton and the whole work concentrated at Crewe; it is interesting to note, as showing the phenomenal rise of the latter place from a mere hamlet, that during this year the town applied for and obtained a charter of incorporation.

The receipts for 1877 again showed a satisfactory increase, being £4,380,976 for the first half and £4,816,707 for the second half, while the dividend was declared at the rate of $6\frac{5}{8}$ per cent. per annum. In the course of this year (1877), the London and North-Western obtained a variety of Parliamentary powers for different purposes, including powers for new lines from Aston to Stechford, $2\frac{3}{4}$ miles; Chilvers Coton to Nuneaton, a little over $1\frac{1}{2}$ miles; Walsall junction, line 1 mile; also extension of time for the completion of the Burton branch and the Buxton and High Peak junction lines; confirmation of an agreement with the Rhymney Railway with respect to mutual running powers and for the construction by the

North-Western of a short branch in Cardiff joining the Rhymney Railway's Bute Dock Low Level line. For the foregoing and for various other purposes the North-Western was authorised to raise new capital (including loans) to the amount of £1,292,300. But undoubtedly the most important powers obtained by the Company in the session was an Act known as the 'Consolidation Act,' by which all the guaranteed and preference stocks were consolidated into two classes, 4 per cent. consolidated guaranteed stock and 4 per cent. consolidated preference stock. The consolidation was carried out in December, 1878, and the following is the circular issued by the Secretary of the Company to the Secretaries of the principal Stock Exchanges :—“At a meeting of the proprietors of the London and North-Western, held this day, the necessary amounts of 4 per cent. guaranteed and preference stocks were created for the purpose of converting the several stocks and shares enumerated in the accompanying lists. I shall be glad if you will therefore take out of your official list any of these stocks or shares which now appear therein, and which, by the resolutions of the meeting, are consolidated. The following are now the only stocks of this company, viz. :—

	TOTAL AMOUNT ISSUED.
4 per cent Perpetual Debenture Stock	£20,679,093
Consolidated 4 per cent. Guaranteed Stock (not contingent on profits of the year	15,000,406
Consolidated 4 per cent. Preference Stock (contingent on the profits of the year)	21,328,120
Consolidated Stock	32,724,377

From this date the several stocks should be described by their new title in all transfers, and any deeds received after to-day will be registered for the equivalent of new stock, and all certificates in this office undelivered will be exchanged for new certificates

GUARANTEED STOCKS.

The following stocks and shares will be consolidated into a 4 per cent. guaranteed stock, which will have precedence over the preference and ordinary stocks. The dividend will not be contingent upon the profits of each separate year. The stockholders will have no right to vote or participate in further profits or advantages. Fractions of a £1 to be adjusted by the holders agreeing to sell such fractions to the company, or purchasing from the company such further fractions as may be necessary to make an even £1 of the new stock, at par, at the option of the holder.

	RATE OF CONSOLIDATION.
5 per cent. Perpetual Guaranteed Stock (St. Helens), Class A Ordinary Stock	£125 per cent.
5 per cent. Perpetual Guaranteed Stock (St. Helens), Class B Ordinary Stock	125 ..
6 per cent. Perpetual Guaranteed Stock (St. Helens), Class C Ordinary Stock	150 ..
4 per cent. Perpetual Guaranteed Stock (St. George's Harbour), created December 16th, 1865	100 ..
4½ per cent. Perpetual Guaranteed Stock (Whitehaven Junction), created August 24th, 1866	112½ ..
5 per cent. Perpetual Guaranteed Stock (Whitehaven Junction), created August 24th, 1866	125 ..
6 per cent. Perpetual Guaranteed Stock (Whitehaven Junction), created August 24th, 1866	150 ..
10 per cent. Perpetual Guaranteed Stock (Whitehaven Junction), created August 24th, 1866	250 ..
4½ per cent. Perpetual Guaranteed Stock (Cockermouth and Workington), created August 24th, 1866	112½ ..
5 per cent. Perpetual Guaranteed Stock (Cockermouth and Workington), created August 24th, 1866	125 ..
10 per cent. Perpetual Guaranteed Stock (Cockermouth and Workington), created August 24th, 1866	250 ..
4 per cent. Perpetual Guaranteed Stock (London and North-Western, late South Staffordshire), created February 21st, 1868	100 ..
4½ per cent. Perpetual Guaranteed Stock (London and North-Western, late South Staffordshire), created February 21st, 1868	112½ ..
4½ per cent. Perpetual Guaranteed Stock (London and North-Western, late South Staffordshire), created February 21st, 1868	112½ ..
4 per cent. Perpetual Guaranteed Stock (Knighton and Central Wales), created May 6th, 1869	100 ..
5 per cent. Perpetual Guaranteed Stock (Knighton and Central Wales), created May 6th, 1869	125 ..
2½ per cent. Perpetual Guaranteed Stock (Central Wales Extension), created May 6th, 1869.. ..	62½ ..

	RATE OF CONSOLIDATION.
5 per cent. Perpetual Guaranteed Stock (Central Wales Extension), created May 6th, 1869	£125 per cent.
10 per cent. Perpetual Guaranteed Stock (Whitehaven, Cleator and Egremont), created August 22nd, 1877	250 „
5 per cent. Perpetual Guaranteed Stock (Whitehaven, Cleator and Egremont Shares of 1866), created August 22nd, 1877	125 „
5 per cent. Perpetual Guaranteed Stock (Whitehaven, Cleator and Egremont Shares of 1867), created August 22nd, 1877	125 „
10 per cent. Perpetual Guaranteed Stock (Whitehaven, Cleator and Egremont Shares of 1876), created August 22nd, 1877	250 „
5 per cent. Perpetual Guaranteed Stock (Whitehaven, Cleator and Egremont Shares of 1876), created August 22nd, 1877	125 „
5 per cent. Perpetual Guaranteed Stock (Whitehaven, Cleator and Egremont Shares of 1877), created August 22nd, 1877	125 „
5 per cent. Perpetual Stock (Coventry and Nuneaton)	125 „
4 „ „ Shares (Bedford)	100 „
4 „ „ Guaranteed Stock (Bucks.)	100 „
5½ „ Chester and Holyhead—First Preference Stock	137½ „
5 „ „ „ —Second „ „	125 „
2½ „ „ „ —Consolidated „	62½ „
5 „ „ „ —L.N.W. Guarant. „	125 „
6 per cent. Perpetual Preference Share Capital (Kendal and Windermere)	150 „
3 per cent. Perpetual Ordinary Share Capital (Kendal and Windermere)	75 „
4½ per cent. Perpetual Preference Stock (Lancaster and Carlisle)	112½ „
Consolidated Stock (Lancaster and Carlisle)	<div style="display: flex; align-items: center;"> <div style="font-size: 3em; margin-right: 10px;">{</div> <div style="text-align: center;"> 200 „ 47½ „ L.N.W. Ordi- nary Stock. </div> </div>

PREFERENCE STOCKS.

The stocks shown hereunder will be consolidated into a 4 per cent. preference stock, which will rank next after the guaranteed stock, and before the dividend *will be contingent* upon the profits of each separate half year. The stockholders will have no right to vote or participate in further profits or advantages. Fractions of a £1 to be adjusted by the holders agreeing to sell such fractions to the company, or purchasing from the

company such further fractions as may be necessary to make an even £1 of the new stock, at par, at the option of the holder.

	RATE OF CONSOLIDATION.	
5 per cent. Perpetual Preference Stock (London and North-Western), created prior to October 26th, 1864	£125	per cent.
4 per cent. Perpetual Preference Stock (Bedford and Cambridge), created on October 26th, 1864 ..	100	„
4 per cent. Perpetual Preference Stock (Shrewsbury and Welshpool), created on December 6th, 1864	100	„
5 per cent. Perpetual Preference Stock (London and North-Western), created on August 24th, 1866 ..	125	„
5 per cent. Perpetual Preference Stock (Merthyr, Tredegar and Abergavenny), created on August 24th, 1866	125	„
4 per cent. Perpetual Preference Stock (Merthyr, Tredegar and Abergavenny), created on November 16th, 1866	112½	„
5 per cent. Perpetual Preference Stock (Warrington and Stockport), created on February 21st, 1868 ..	125	„
5 per cent. Perpetual Preference Stock (Warrington and Stockport), created on February 21st, 1868 ..	125	„
5 per cent. Perpetual Preference Stock (Warrington and Stockport), created on March 21st, 1868 ..	125	„
5 per cent. Perpetual Preference Stock (Warrington and Stockport), created on April 2nd, 1868 ..	125	„
5 per cent. Perpetual Preference Stock (London and North-Western), created on February 23rd, 1869	125	„
5 per cent. Perpetual Preference Stock (London and North-Western), created on May 6th, 1869 ..	125	„
5 per cent. Perpetual Preference Stock (London and North-Western), created on November 19th, 1870	125	„
5 per cent. Perpetual Preference Stock (London and North-Western), created on August 19th, 1871 ..	125	„
5 per cent. Perpetual Preference Stock (London and North-Western), created on May 27th, 1873 ..	125	„
5 per cent. Perpetual Preference Stock (London and North-Western), created on May 30th, 1874 ..	125	„
5 per cent. Perpetual Preference Stock (London and North-Western), created on August 22nd, 1874 ..	125	„
5 per cent. Perpetual Preference Stock (London and North-Western), created on February 20th, 1875..	125	„
5 per cent. Perpetual Preference Stock (London and North-Western), created on May 16th, 1876 ..	125	„
5 per cent. Perpetual Preference Stock (London and North-Western), created on May 13th, 1877 ..	125	„
5 per cent. Perpetual Preference Stock (London and North-Western), created on November 13th, 1877	125	„
5 per cent. Perpetual Preference Stock (London and North-Western), created May 15th, 1878	125	„

CHAPTER XIII.

General Progress (1878—1882).

LLANDULAS VIADUCT—IMPROVEMENTS AT HOLY-
HEAD—FENIANS—MISHAP AT HOLYHEAD—
THE IRISH QUESTION AND FENIANISM—
SOCIETIES AND FUNDS FOR THE STAFF.

The year 1878 does not call for very much notice in the history of the London and North-Western Railway. The chief new openings were the following: A large new and commodious terminus at Woodside, Birkenhead, built jointly with the Great Western; an addition to London Road Station, Manchester, to accommodate the trains of the Manchester, South Junction and Altrincham Railway, which were extended through Oxford Road Station into London Road; and a short extension in South Wales from Blaenavon to Abersychan. The line between Rugby and Market Harborough was converted during the year from a single to a double line. Apart from new openings, perhaps the most important event which occurred during the year was the inauguration of a midnight train with sleeping saloons from Euston to Birmingham, Manchester and Liverpool; this train proved a great convenience, and was from the first an unqualified success. In the session of 1878 the North-Western obtained several Acts of Parliament; these included powers for the admission of the Furness Railway in the joint ownership of the Whitehaven, Cleator and Egremont line, which it will be remembered the North-Western had

absorbed the previous year, and particulars of which have already been given; the construction of a new line of a little over a mile and a-half between Wortley and Leeds, and various widenings and improvements on the Huddersfield-Manchester line, and new capital powers to an amount exceeding half a million; purchase of lands and various other works; agreements with the Manchester, Sheffield and Lincolnshire for a joint station at Stalybridge, and with the Great Northern Railway of Ireland for the transfer of part of the latter's North Wall line at Dublin, and various other new railways and works, and new capital powers amounting to £2,250,000 with a further £750,000 in loans. Thus in the course of the session the Company obtained powers to raise an additional capital of over three and a-half million, a huge sum to be authorised in one session. One might be excused if one thought that the undertaking had been somewhat starved for capital, but this was not the case, for the three previous years had witnessed a rapid increase of capital—in 1877, the Company had taken powers to raise considerably over a million; in 1876, the new capital authorised also exceeded the million; while in 1875, the additional capital powers conferred on the Company amounted to over four millions. An authorised increase of about ten million in four years was undeniably a rapid increase of capital, and one would not have been surprised if the dividend had been, at least temporarily, reduced; however, this was not the case, for the year 1878 the dividend was at the rate of $6\frac{1}{2}$ per cent., the next year it was the same, while for the four following years the dividend actually showed a substantial increase. This shows that the increase of capital, although a trifle rapid, was amply justified.

A few new openings took place during 1879. In June a joint line with the Brecon and Merthyr

Tydfil Junction Railway was opened from Dowlais to Merthyr, which gave the North-Western access to this latter place, an important centre of the South Wales coal trade. In July a new line in North Wales was opened extending from Bettws-y-Coed to Festiniog, where it connected with a narrow gauge railway; originally it had been intended to construct this line on the narrow gauge, but it was afterwards decided to adopt the standard gauge—the new line ran through a mountainous and sparsely populated district, and opened up a most beautiful part of the country. On the 1st of November a new line was opened between Seaton and Wansford, which connected two sections of the North-Western, and which provided a new direct route between Rugby and Peterboro', thus opening up a new route between Birmingham and the Midlands and the Eastern Counties, *via* Peterboro', where the trains of the North-Western connected with those of the Great Eastern Company, the two railways sharing a station. During this year the Lancaster and Carlisle Railway, which it will be remembered had been leased to the North-Western for 999 years, was definitely amalgamated with the London and North-Western. Nor was this the only concern absorbed during the year, for on the 1st of July the undertaking of the Denbigh, Ruthin and Corwen Railway was vested in the North-Western. This railway consisted of a line of $18\frac{1}{4}$ miles running from the Vale of Clwyd at Denbigh to a junction with the Great Western at Corwen. During the year several new train services were inaugurated, which included a regular hourly service between Euston and Watford, and the running of through coaches between Euston and Southport, one of the most popular seaside resorts of the North, *via* Wigan and the Lancashire and Yorkshire Railway. The train service on the Shrewsbury and Hereford joint line was

re-arranged, so as to be joint in practice as well as in name, and thus, much needless competition between the North-Western and Great Western was done away with. In the course of this year great improvements were effected at Lime Street Station, Liverpool. The station was greatly enlarged, and the tunnel outside the station was doubled ; previous to this, trains had been worked in and out of Lime Street by a stationary engine and a rope, but now locomotives started to work regularly into the station. At the same time as

WEBB'S 3-CYLINDER COMPOUND LOCOMOTIVE, *Compound*, BUILT
MARCH, 1883.

these improvements were carried out, the Company took into its own hands the working and management of its magnificent Lime Street Hotel, which had been built in 1870, and which had since been leased to contractors.

On the 17th of August a mishap occurred on the Chester and Holyhead section, which might have entailed the most disastrous results, but which, fortunately, did not cause any loss of life ; this was the wrecking of the Llandulas viaduct on the North Wales Coast. The replacing of the

viaduct shows in a remarkable degree what the North-Western can accomplish in an emergency, and so we will tell the story in Sir George Findlay's own words:—"In the great storm of Sunday, the 17th August, 1879," says Sir George Findlay, "the Llandulas viaduct, on the main line of the Chester and Holyhead Railway, was undermined by flood, and washed completely away, interrupting for the time being the traffic between England and Ireland. For two days, until the flood had subsided, nothing could be done, but within the space of five days afterwards the railway was deviated for about half a mile, so as to strike the river at the narrowest point, and a temporary trestle bridge was erected, over which the first train passed at 2 p.m. on the 24th August, exactly seven days after the mishap occurred. The line was cut in the slope of the embankment leading to the old viaduct, and was everywhere placed upon solid ground, or upon stacks of old sleepers, so that there might be no settlement, and the line might be fit for the heaviest traffic immediately it was completed. The gradients were 1 in 23 dipping down to the river, and rising on the opposite side, and everything was finished off in the most substantial and careful manner; but, of course, great skill and attention were necessary on the part of the engine drivers, and the difficulty of working long and heavy trains, some of which required three engines, over these severe and changing gradients, without breaking the couplings, or heavily bumping the carriages together, can hardly be exaggerated, yet no mishaps occurred, and the passengers in the trains were scarcely aware that they were travelling under unusual conditions. The new permanent viaduct was meanwhile rapidly constructed, and was actually completed and opened for traffic on the 14th September, less than one month after the mishap. Its length is 224 feet,

divided into seven spans of 32 feet each, and its height is 50 feet. Forty-two girders, each 32 feet in length, were required, and the plates and angles for each girder were rolled in one length. All these were made in the Company's own steel works at Crewe, and the whole of the material was turned out and ready for erection within seven days, the steel having been manufactured, rolled, and worked within that short space of time."

It was during this year that a start was made in superseding the old and unsatisfactory oil lamps, which were used to illuminate the coaches, by an improved system of gas. The new system was a patent of Mr. Pope, the gas being manufactured from shale oil in a special plant, and the gas then being pumped through a pipe into special cylinders fitted under the carriages. Two of these cylinders, each 16 feet long, with a diameter of 13 inches, contained enough gas to supply twenty lights on a journey from London to Aberdeen and back again. The new system was much cleaner than the old system, it gave an infinitely better light, and did away with the labour of trimming and cleaning the dirty oil lamps; from the start it was a great success, and the work of fitting it to the bulk of the coaching was soon taken in hand.

Several Parliamentary Acts were obtained this session. These included (i.) powers for the vesting of the Denbigh, Ruthin and Corwen Railway (already dealt with); (ii.) new railways from Denton to Saddleworth, 8 miles, at Cwm Bargoed Junction, about $5\frac{1}{2}$ furlongs, and two short lines at Egremont, jointly with the Furness, in connection with the Whitehaven, Cleator and Egremont line; new capital £540,000 and new loans £180,000; (iii.) certain powers in conjunction with the Great Western, Furness, and Lancashire and Yorkshire Companies; powers for the dissolution of the

Buckinghamshire, the Bedford, the Chester and Holyhead, the Lancaster and Carlisle, and the Kendal and Windermere Railway Companies under the consolidation scheme; new capital £450,000, new loans £150,000.

At the very end of the year, in December, the joint line of the North-Western and Great Northern Railways was opened throughout for passenger traffic between Market Harborough and Bottesford and Radcliffe. The section north of Melton Mowbray had been opened earlier in the year, but the opening of the southern section had been delayed by an extensive land slip at East Norton. It will be remembered that at the time this line was promoted the North-Western had granted the Great Northern running powers from Market Harborough to Northampton in return for running powers into the town of Nottingham, and in order to accommodate the increased traffic which the Great Northern was likely to bring over this section, the North-Western during the year doubled the single line which existed between Market Harborough and Northampton. By the opening of this line the North-Western was enabled to compete for the traffic of the important town of Nottingham, and obtained a serviceable route to the Nottinghamshire, Derbyshire, and South Yorkshire coalfields.

The gross receipts for the year showed a slight decrease; for the first half they were £4,308,924, and for the second half £4,840,637. The dividend, however, was at the same rate as that for the previous year, namely, $6\frac{1}{2}$ per cent.

Perhaps the most important event which occurred in the history of the North-Western during the year 1880 was the opening of a new station and extensions at Holyhead Harbour. Previous to this the facilities at Holyhead had not been all that could be desired, but the

Company had undertaken a large scheme for extending the harbour accommodation and improving the access between the trains and the boats. On the 17th of June these improvements and the large new inner harbour, which had been constructed at a cost of £750,000, were opened by the Prince of Wales, and a luncheon, at which nearly one thousand guests were present, was held in one of the goods sheds. A large new station hotel was built by the company at Holyhead, and the Royal Hotel, which was some distance from the station, and which had been taken over with the Chester and Holyhead Railway, was closed. Shortly afterwards it is interesting to note that the North-Western opened an hotel on the other side of the Channel, at North Wall, Dublin, which proved a great convenience to travellers by the North Wall route. Soon after these improvements had taken place at Holyhead, the North-Western inaugurated a new evening service between London and Dublin *via* Holyhead and North Wall, and placed on the service two new fast paddle boats, the *Lily* and the *Violet*, each of which was 310 feet long, and had a tonnage of 1,035 tons and a speed of 19 knots, while soon afterwards the *Banshee*, a similar boat, but slightly longer, was added to the fleet.

While on the subject of Ireland and the Irish services, it may here be mentioned that this year witnessed a dastardly attempt to wreck the Irish Mail. On the 12th of September a dynamite cartridge was placed on the line near Watford shortly before the down Irish Mail was due. Fortunately, however, the dynamite cartridge failed to bring destruction to the train and its living freight, a slight explosion only taking place, which was thought by those on board to be a fog-signal. The North-Western offered a reward

of £100 for information leading to the arrest of the perpetrators of this diabolical crime, and the Government also offered a similar reward, but unfortunately this led to no results. The general impression was, however, that it was the work of Fenians.

On the 1st of January the North-Western opened the Atlantic Dock Branch, Liverpool, a little over a mile in length; on 1st of March Windsor Street Branch, in Birmingham, another branch of a mile, was opened; and on the 7th of September a line of $2\frac{3}{4}$ miles was opened between Aston and Stechford. On the 1st of July the Callander and Oban Railway was opened between Dalmally and Oban, a distance of $24\frac{1}{2}$ miles. The Callander and Oban Railway was a subsidiary company of the Caledonian's, and was worked by the latter. The North-Western had subscribed to it, and had also been empowered to appoint a representative on the Board. By the opening of the line the West Coast companies obtained access to the favourite Highland seaside resort, Oban. Many works were in progress on the North-Western, most of them of minor importance; although, of course, it would be manifestly impossible to afford the space to give each year the engineer's report on the progress of works, yet it might be of interest to give, as an example, the engineer's report for one year. The following, dated August the 10th, is the report for 1880, which is an example of an average year:—"Rapid progress has been made with the widening of the railway from Bletchley to Roade, and with the new line from Roade to Northampton; as already reported, one of the two additional lines is open for goods and mineral traffic for a length of 11 miles. The deviation of the main line at Wolverton is also in a forward state. The stations at Bletchley, Castlethorpe and Roade are

in progress, and preparations are being made to commence the new passenger and goods station at Northampton. On the new railway from Northampton to Rugby the earthwork, tunnels, and bridges are nearly finished, and the ballasting and laying of the permanent way, with the intermediate stations at Althorpe, Long Buckby and Kilsby, will shortly be commenced. The Aston and Stechford

THE LONDON AND NORTH-WESTERN RAILWAY HOTEL, LIME STREET
STATION, LIVERPOOL.

Junction will be opened for traffic in the course of a few weeks. The earthwork and bridges on the widening of the South Staffordshire at Walsall are nearly finished, and the laying of the permanent way and ballasting on the curve to connect the South Staffordshire with the Grand Junction at Walsall, and on the line to connect the Grand

Junction with the Midland at Wolverhampton, are in progress. On the widening of the railway between Warrington and Winwick the bridges are nearly completed, and the additional lines will be ready for use at the end of the year. The progress with the Ashton Branch Junction has been unsatisfactory, but steps are being taken to expedite the completion of the work.

“The four additional lines between Longsight and Ardwick were opened throughout on the 1st July last. The works of the new low level wharf at Ardwick are proceeding satisfactorily. On the widening of the Liverpool and Manchester 13 of the 19 bridges are built, and the only earth-work to complete is that for the widening of the Barton Moss embankment. At the enlargement of London Road Station, Manchester, the roof is nearly finished, and the platforms are being paved. The new low level goods station is in progress. The works of the new goods warehouse at Liverpool Road, Manchester, the opening out of the tunnel and widening the railway for three additional lines of rails at Stockport, and the branch railway at Burton have been commenced. Progress is being made with the opening out of a further portion of the tunnel between Lime Street and Edge Hill Stations, Liverpool. The widening of the Bolton and Kenyon line from Pennington to Atherton is finished and open for traffic.

“Satisfactory progress has been made with the works of the new railway from Wortley to Leeds, the new general wharf and coal dépôt at Hill House, Huddersfield, and with the branch to Glasson Docks at Lancaster. The extension of the sidings and the new approach road at Canada Dock Goods Station, Liverpool, are nearly complete. The two additional lines on the North Union between Euxton and Preston, including the stations at Leyland and Farington, and the viaduct

over the River Ribble have been opened for traffic. At Preston Station the whole of the island platform was brought into use on the 18th of July, 1880. At Carlisle a portion of the new island platform has been brought into use, and the roofing is being erected. The new harbour and station at Holyhead were opened by His Royal Highness the Prince of Wales on the 17th June, 1880. The enlargement of the Hotel at Euston Station is being roofed in. The low level wharf at Broad Street (City of London), will shortly be opened for traffic. The pier at Greencastle, for the accommodation of steamers connecting the district on the East side of Carlingford Lough with Greenore Station, was brought into use on the 16th July. The widening of the line and additional accommodation at Victoria Station, Manchester, widening the viaduct at Huddersfield Station, and the erection of a goods warehouse and passenger station at the Atlantic Docks Dépôt at Liverpool will shortly be proceeded with."

An engineer's report, such as the foregoing, illustrates the ubiquity of the London and North-Western system, and shows in a remarkable degree the innumerable extensions and improvements which are always being carried out on such a mammoth system.

Besides the new Irish service already referred to, new train services inaugurated during this year included a daily service of eight trains each way daily between Willesden and Herne Hill, thus connecting the systems of the North-Western and the London, Chatham and Dover, and also a new service, with through carriages for the first time, between London and Birkenhead, in competition with the Great Western Company's service.

In the Parliamentary session of this year the North-Western obtained powers to construct a line of some $8\frac{1}{2}$ miles between Sutton Coldfield and

Lichfield, and also to construct five new railways at Littleworth, West Leigh, Atherton, Bolton and Bangor; it also obtained various other powers, but they were of minor importance.

In the course of this year the gross receipts for a single half-year were for the first time over five millions, this occurring in the second half of the year, the receipts for the first half being £4,612,931. The ordinary dividend was at the rate of $7\frac{3}{8}$ per cent. per annum.

During the next year, 1881, the Watford and Rickmansworth Railway was vested in the London and North-Western. This was a small line of some $4\frac{1}{2}$ miles, connecting the North-Western at Watford and Rickmansworth. The company had been incorporated by Act of Parliament in 1860, with a capital of £40,000 and loans of £13,000, and the line had been opened on the 1st of October, 1862. The North-Western had subscribed £10,000 towards the undertaking, and had worked the line, but it had never been a success, and its affairs were in Chancery and a Receiver appointed. Under these circumstances the destiny of the line was undoubtedly ultimate absorption by the North-Western, and on the 1st of July the Watford and Rickmansworth was vested in the London and North-Western.

Several minor openings took place during the year. On the 1st of March some short junction lines around Wolverhampton and Walsall were opened, which considerably improved the train services in this district. In April the Blaenau Festiniog line was extended near to the station of the Festiniog narrow gauge railway, and an hotel was opened at Blaenau Festiniog. This hotel, however, does not appear to have met with great success, and it was afterwards deleted from the Company's list of hotels. On the 1st of June a joint line with the Furness Railway was opened

from Parton to Distington, and in September the Liverpool Suburban line was extended to the Alexandra Dock; whilst at the end of the year the new line between Rugby and Northampton was opened for traffic. Several important widenings, which had to be undertaken to meet the increased traffic, were brought into use this year, notably the quadrupled lines between Warrington and Winwick and the widenings between Bletchley and Roade; at the same time the station at Bletchley Junction was rebuilt. Amongst other improvements which were brought into use during the year was an enlargement of the hotel accommodation at Euston. Previous to this there had been two hotels at Euston, with a road in between them—the Euston Hotel, on the east side, and the Victoria Hotel, on the west side; but in July a large new central block, connecting the two hotels, and with the road passing through an archway in it, was brought into use, and thenceforward the whole building was known as the Euston Hotel, with separate entrances into the ‘east wing’ and the ‘west wing.’

In the course of this year the Midland made another dramatic *coup*. This time they bought up practically the whole of the stock of private traders’ wagons running on their lines, and thus added thousands to their wagon stock. This naturally forced the North-Western and other companies to increase somewhat their supply of wagons. The Midland’s lead has not been followed to any extent by other companies, and it is hard to say whether it was a good stroke of policy. Traders’ wagons have always been a source of trouble and accident, but, on the other hand, the purchase of a varied collection of all sorts and conditions of wagons must inevitably lead to heavy accounts for maintenance and renewals. Another

event (although, strictly speaking, it has nothing to do with the history of the London and North-Western Railway) which, nevertheless, ought to be recorded is the celebration of the Stephenson Centenary, which took place at Wylam—Stephenson's birthplace—on the 9th of June, 1881, a hundred years after the birth there of George Stephenson. A procession of 21 locomotives, coupled together, made the journey from Newcastle Central Station to Wylam. The locomotives were provided by the chief railway companies, and the London and North-Western sent two, No. 216, *Mabel*, and a six-wheeled single

THE ACTON GRANGE VIADUCT OVER THE MANCHESTER SHIP
CANAL NEAR WARRINGTON.

engine, built in 1842 for the Grand Junction Railway. Several old locomotives took part in the procession, including the Killingworth locomotive, the first constructed by Stephenson, and *Locomotion*, the No. 1 of the Stockton and Darlington Railway.

The Parliamentary powers obtained by the North-Western in the session of 1881 do not call for much notice, they included joint powers with the Midland for a line at Market Harborough, with new capital powers of £44,000 including

loans. The gross receipts for 1881 were £4,656,964 for the first half and £5,171,995 for the second half, and the dividend on the ordinary stock was at the rate of $7\frac{1}{4}$ per cent. per annum.

The most important opening which occurred during 1882 was the opening of the Northampton and Roade line, which event took place on the 3rd of April. The construction of this line entailed a large amount of earthwork, and soon after the opening a landslip occurred which necessitated a temporary closing of the line. The opening of this line, together with the Northampton and Rugby line, which, it will be remembered, had been brought into use during the previous year, had the effect of placing Northampton on a main line, a position which the town hardly deserved considering the way in which it insisted that the line of the London and Birmingham Railway should not approach the town.

Other openings which occurred during this year were the Aston and Stechford line, which improved the communication between Wolverhampton and the South ; a short line between Wortley and Leeds, which considerably bettered the North-Western's access to the latter city. The Denton and Droylsden line, which provided through communication between the North-Western and the Lancashire and Yorkshire systems *via* Stockport ; and a short branch in Cheshire from Winsford to Over and Wharton.

During this year an hourly system of trains, running at uniform times, was introduced between Birmingham and Wolverhampton, and between Birmingham and Harborne.

In the course of the year a magnificent new hotel, built at the joint expense of the London and North-Western and Lancashire and Yorkshire Companies, was opened at Preston. The hotel was located a short distance from the station in a

magnificent situation, overlooking the public park (from which it took its name, the Park Hotel) and the River Ribble which runs through the town. During the year the Company still further added to its list of hotels by taking into its own hands the management of the Queen's Hotel at Birmingham, which it had owned for some considerable time, but the working of which had been let to contractors.

A minor change in working took place this year. It will be remembered that the Clarke-Webb chain brake, which was the standard on the line, did not comply with the conditions promulgated by the Board of Trade. Adverse criticisms continued to be levelled at the brake, and so at length the Board decided to equip the rolling stock with the Simple Automatic brake.

A most regrettable incident occurred during this year at Holyhead.

Mr. G. P. Neele has already told the story in his most interesting book, "Railway Reminiscences, and Notes on a Railway Superintendent's Life." We will therefore proceed to tell the story at first hand. "At Holyhead," says Mr. Neele, "close to the end of the down platform, near the south-westerly end of the import goods shed, a very large subsidence of the quay wall had taken place, and had developed to such an extent that it had become necessary to stop traffic altogether from passing the extreme end of the station platform. The footway by which at that time the voyagers arriving by the cargo boats had to pass usually led to this platform, but owing to the subsidence the path was diverted a little, and led alongside a raised cattle pen used for 'disabled pigs' which had been lamed or injured during rough voyages from Dublin, etc.

"Strict orders had been issued by Mr. Ephraim Wood, the District Superintendent, that no wagons were to be allowed to pass this pen from the time

our steamer was signalled as approaching until all the passengers coming from the quay had arrived. From neglect of the signalman and shunter in charge on the occasion under review (24th Sept.), this order was disregarded, with the fatal result that no less than three passengers on their way from the cargo steamer *Duchess of Sutherland* to the station were caught by the trucks in motion and crushed to death. Some bitter racial feeling was displayed at the inquest. The blame really rested with the two Welshmen who were engaged in the interdicted shunting. With the exception of the foreman, the whole of the jury were Welsh with an ineradicable dislike of everything English. The foreman was so disgusted with the conduct of his fellow-jurors that he declined to attend the adjourned hearing, and had to pay a fine of £10 in consequence. The jury, in giving their verdict, brought in Mr. Wood, the District Superintendent, Mr. Guest, the station master, together with Inspector James Holt and Foreman William Alcock, guilty of 'Man-slaughter.' On this indictment these four Englishmen had to be tried at Beaumaris in January of the following year before Lord Coleridge. Mr. Roberts, our solicitor from Euston, together with Mr. R. M. Preston of Chester, were in attendance with us. The first relief we experienced was in the announcement that the Grand Jury threw out the bill as against Wood and Guest; but the trial of all four still proceeded under the Coroner's Verdict, and before the close of the first day's trial both Wood and Alcock were formally acquitted. On the second day, after some evidence by the Welsh shunter, Lord Coleridge stopped the case, and directed the acquittal of Guest and Holt. The jury stated they quite agreed in this course; they were unanimous on the point, and thanked his lordship for his sensible remarks."

The Parliamentary powers obtained in 1882 do not call for much attention, these included powers for a new line to connect with the Manchester, South Junction and Altrincham Railway at Ordsall Lane Station, with capital powers including loans amounting to £12,000; and also certain joint powers with the Lancashire and Yorkshire and Great Western Railways, confirmation of agreement with the Midland Railway regarding Rugby Station, and new capital powers amounting to £700,000, with further borrowing powers of £233,000. The gross receipts for both half-years continued to show gratifying increases, and the dividend was at the rate of $7\frac{1}{2}$ per cent. per annum.

The list of openings in 1883 is not a very lengthy one, the two chief, which took place during the year, being the Charnwood Forest Railway and the Glasson Dock Branch. The former, which was an independent undertaking worked by the London and North-Western, was opened for traffic in April and consisted of a single line about $11\frac{1}{2}$ miles in length, extending from Coalville to Loughborough. The latter, which was opened in July, was also single and was about 5 miles in length, extending from Lancaster to Glasson Dock, a place on the Lancashire Coast where the Lancaster Canal joined the sea.

During this year the system of running hourly trains at uniform times, which, as we have seen, had already been placed in force between Liverpool and Manchester, London and Watford, Birmingham and Harborne, and Birmingham and Wolverhampton, was inaugurated between Leeds and Huddersfield.

During this year a greatly improved type of corridor sleeping saloons was introduced; these coaches were 42 feet in length and ran on 8 wheels, and were chiefly remarkable for the fact that they were the first coaches to exceed 33 feet, which

was the standard limit for the length of rolling stock on the line.

The Irish Mail contract, which it will be remembered was held by the City of Dublin Steam Packet Company, came up for renewal this year. The North-Western naturally wished to carry the mails the whole way between London and Ireland, and tendered for the contract. In the half-yearly report it was announced that the London and North-Western had secured the contract from the Postmaster-General, but immediately an agitation

A LOCOMOTIVE CRANE ENGINE TO LIFT 4 TONS, BUILT AT
CREWE WORKS.

was started in Ireland and an outcry was raised that the contract should be given to the Irish Company. A regular political controversy arose and ultimately, at the instance of the Postmaster-General, the London and North-Western Railway withdrew their tender and the contract was given to the Irish Company. As most people are aware, the Irish question at this time was a most pressing one, the Fenians were extremely busy, and dynamite outrages occurred with alarming frequency. In November, 1883, just previous to one of Queen Victoria's journeys from Windsor to

Scotland, the Government received a letter threatening to blow up the Royal train. The Government communicated with the railways concerned, and the whole of the line between Windsor and Ballater, a distance of nearly 600 miles, was inspected and patrolled by an army of platelayers, and the Royal journey was performed in perfect safety.

The year was unfortunately marred by an accident, an accident which was fortunate in not entailing a longer death-roll than it did. An engine and carriages were standing on the up line in Watford Station, when, unfortunately, the signalman forgot their presence and signalled the line all clear for an up express. The result may be imagined, the express dashed into the waiting train, the engine of the express was overturned, the driver killed, and 23 other persons were more or less seriously injured.

In the course of this year the London and North-Western Pension Fund was started; the object of this fund was to provide pensions for members when they retired at the age of 65, or at 60, if they had to retire through failing health. This fund was for the benefit of the wages staff; each member subscribed one penny or twopence weekly, and the company also subscribed annually a large sum to it. At retirement those who had subscribed one penny weekly obtained a pension of seven shillings a week, and those who had subscribed twopence received ten shillings weekly. Several societies for the benefit of the staff existed previous to this, and while on the subject, a few brief particulars of these might prove of interest. In 1853 a Superannuation Fund Association had been started, which provided a retiring pension for the salaried officers and clerks of the company who had subscribed to the Society for ten years. Each member subscribed per annum an amount equal to

2½ per cent. on their salaries, and the company subscribed a similar amount in respect of each member. An Insurance Society had been started in 1871 to provide members of the wages staff with benefits in case of death or temporary or permanent disablement, and in 1874 a Provident and Pension Society had been started in order to provide members of the wages staff with a weekly allowance in case of illness. Thus it will be seen that the interests of its staff were well looked after by the London and North-Western Railway.

During this year the London and North-Western obtained Parliamentary powers to absorb the Lancashire Union Railway, and so from the 1st of July the latter became in name, what it had always been in practice, part of the London and North-Western Railway. The transfer was subject to the interest which the Lancashire and Yorkshire had acquired in the Lancashire Union; the ordinary shareholders received £137 10s. for every £100 of capital. Other powers which the North-Western obtained during the year were powers for new railways at Soho, Handsworth and Perry Bar, widening from Golborne to Springs Branch, and various other widenings in Warwickshire, Lancashire and Yorkshire, together with new capital powers (including loans) for £2,433,000. The receipts for the year again showed a satisfactory increase, and the dividend was maintained at the high rate of 7½ per cent. per annum.

CHAPTER XIV.

1884—1890.

THE PORTPATRICK AND WIGTOWNSHIRE—THE
“ROYAL MAIL ROUTE”—CREWE.

The principal event in the history of the London and North-Western which occurred during 1884 was the opening of a second large passenger station in Manchester, or, to be strictly accurate, in Salford, for the new station was situated just over the boundaries of the City.

The North-Western at this time possessed a large station, London Road, where traffic for the South was dealt with, but traffic for Yorkshire, Liverpool and the North had to use a part of Victoria Station, which was quite inadequate for the demands made upon it. Under these circumstances the North-Western Board had determined to construct a second large passenger station for the needs of the Manchester traffic, and in June this station was opened. The new station was a fine roomy erection, consisting of four platforms, while a fifth was added the next year, the whole being covered by a glass roof composed of three spans. Its situation was excellent, adjoining the Victoria Station of the Lancashire and Yorkshire, and facing the Manchester Cathedral, from which it was separated by the River Irwell, which here divides Manchester and Salford; however, a broad bridge was constructed across the river, and this provided easy access between the Exchange Station (as it was named) and the City of Manchester. The new station proved a great convenience to those working the traffic and to the general public.

and a large traffic was dealt with at the station, services starting from here to Liverpool, Leeds and Yorkshire; The Western and North-Western suburbs; Bolton, Wigan and other Lancashire towns; North Wales and Holyhead for Ireland; Blackpool and the Lancashire Coast; the Lake District; and Scotland.

Several other openings took place during 1884. In March a short extension of the Penclawdd Branch in South Wales, from Penclawdd to Llanmorlais was brought into use, and in July a single line branch was opened in North Wales from Bangor to Bethesda. In June a line was opened from Berkswell to Kenilworth, which gave the North-Western a shorter route between Birmingham and Leamington and Warwick, and in view of the increased traffic the line between Kenilworth and Warwick was converted from a single to a double line. The opening of the Sutton Coldfield to Lichfield line, which took place in December, concludes the list of important openings which occurred during the year. At this period widenings were being made in many parts of the system in order to accommodate the rapidly increasing traffic, and during the year widened lines were brought into use between Exchange Station and Eccles, Ditton and Speke, and between Heaton Norris and Ardwick.

In the course of this year the London and North-Western Railway, in conjunction with the North-Eastern Railway, inaugurated a most important system of through trains running between Liverpool, Manchester, Leeds and Newcastle. The transference of these trains between the two Companies took place at Leeds, where, it will be remembered, the two lines possessed a joint station. These trains left Liverpool at 7.35 a.m. and at 5.0 p.m., and arrived at Newcastle at 1.50 p.m., and 10.55 p.m. respectively. In the reverse direction

trains left Newcastle at 7.35 a.m. and 4.0 p.m. and reached Liverpool at 1.45 p.m. and 10.15 p.m. This service of trains was one of the first attempts of two railways to provide a cross-country service, and from the first it was deservedly a success, the trains immediately meeting with popular favour.

In the session of this year the London and North-Western, jointly with the Great Western, secured powers to absorb the Vale of Towy Railway, which ran from Llandovery to Llandilo, and which had been leased in 1868 by the Llanelly and the Central Wales Railways. Other powers obtained in this session included powers for widening the Preston and Wyre line jointly with the Lancashire and Yorkshire; fresh capital for this purpose, £81,000 and £27,000 loans; new railways at Nottingham and Edge Hill, widening at Stockport, various new works jointly with the Great Western, Lancashire and Yorkshire, and North Staffordshire, and powers to raise new capital to the extent of £750,000, and borrowing powers for £250,000. The receipts for the year showed a decrease on those for the previous year, and the dividend also showed a decrease, being at the rate of $6\frac{3}{4}$ per cent. as compared with $7\frac{1}{2}$ per cent. for the preceding year.

The most important event in the development of the London and North-Western which occurred in 1885 was the transfer of the Portpatrick and Wigtownshire Railway to a joint committee of the London and North-Western, Caledonian, Midland, and Glasgow and South-Western Railways, which took place on the 1st of August. The Portpatrick Railway had been authorised as far back as 1857 to construct a line from Castle Douglas to Stranraer and Portpatrick in order to provide a short sea route between England and Ireland. The Lancaster and Carlisle subscribed to the scheme, as also did the London and North-

Western, Caledonian, Glasgow and South-Western, and the Irish, Belfast and County Down.

In 1861 the line was opened between Castle Douglas and Stranraer, and in 1862 the main line was opened throughout to Portpatrick, a distance of 61 miles. The line was worked by the Caledonian. Steamship services were tried both *via* Portpatrick and Donaghadee and *via* Stranraer and Larne, but did not meet with much success. Eventually the Portpatrick-Donaghadee route was abandoned, owing to the difficulties of entering Portpatrick harbour, and the Stranraer-Larne route was definitely adopted. In 1871 the Larne

THE *Experiment* OF 1882, THE FIRST LOCOMOTIVE ON WEBB'S COMPOUND SYSTEM.

and Stranraer Steamship Company was formed under the auspices of the Portpatrick Railway, to provide daily communication between Scotland and Ireland by the short sea route, and in 1872 the *Princess Louise* was placed on the service.

The Wigtownshire Railway was incorporated in 1872 to construct a line from the Portpatrick Railway at Newton Stewart to Whithorn, a distance of $19\frac{1}{8}$ miles, and a branch of $1\frac{3}{4}$ miles to Garliestown, and the line was opened in sections between 1875 and 1877. As we have already recorded, on the 1st of August the Portpatrick and Wigtownshire Railways were transferred to a joint committee of the London and North-Western, Caledonian, Midland, and Glasgow and South-Western Railways. The terms of transfer were as follows:—The ordinary shareholders in the Portpatrick Railway exchanged their shares for a like amount of new $3\frac{1}{2}$ per cent. stock, guaranteed by the four companies, called “Portpatrick and Wigtownshire Guaranteed Stock;” and the shareholders in the Wigtownshire exchanged their stock for an amount equal to 50 per cent. of their holding of “Portpatrick and Wigtownshire Guaranteed Stock.” The amount of the $3\frac{1}{2}$ per cent. guaranteed stock was £491,980. The working and maintenance of the new joint railway was left in the hands of the Scottish partners.

The work of widening the lines at different parts of the North-Western system still went on, and in the course of the year widened lines were brought into use between Lime Street and Edge Hill, between Ditton and Widnes, and between Bolton and Kenyon; a new station, joint with the Midland, was opened at Market Harborough, and enlarged stations were brought into use at Birmingham (New Street) and Rugby. The Lancaster Canal Company was also vested in the Company in the course of the year. This year witnessed

the inauguration of the first train run exclusively for postal purposes. This train, which was composed of specially constructed mail and sorting vans, left Euston each night at 8.30 and ran through to Aberdeen, connecting at Crewe with the Irish Mail, and serving in the course of its progress northwards, by means of its connections, most places in England, Scotland and Ireland. A most realistic account of a journey by this train has been penned by Mr. W. M. Acworth, the well-known writer on railway subjects, in his excellent work, "*The Railways of England*," and below we give excerpts from it. "In front," writes Mr. Acworth, "were two parcel vans, the one for Edinburgh, the other for Aberdeen, in which men were sorting from and into huge hampers the parcels that had been roughly grouped by districts at the London receiving offices. In the rear of the train was a similar van for the Glasgow parcels. In all we had 'on board' about 3,000 parcels in 100 hampers and packages. On the whole, the parcel sorters had a comparatively easy time of it. . . ." "The train only stopped at Rugby and at Tamworth all the way from Euston to Crewe, so the parcels to be dealt with were a finite quantity, and if those to go out at Rugby were ready by the time the train reached Blisworth, the sorters could sit down and rest for twenty minutes. The labour of the letter sorters, on the other hand, was like that of the Danaides, as the letters poured in and out all the way in a never-ending stream. In the middle of the train were three letter vans. In the centre one was worked the 'apparatus' which took in and put out the letters. On either side was a sorting van, the one going through to Aberdeen, the other to Glasgow. Hardly had we got clear of London, when at Harrow we received our first consignment of letters. As we approached the station the official in charge of the apparatus drew back a

sliding panel on the left-hand side of the carriage. Then, with a lever (not unlike a signal lever) placed lengthways of the train, he thrusts out at right angles an arm with a net attached that had hitherto been lying tight folded against the side. The motion of the lever sets an electric gong ringing furiously, and warns all concerned that the net is out and it is not safe to attempt to pass across the opening till the letters have been received. Crash! a shower of sparks flies from the iron arm, the train seems for a second to reel from the shock. Bang! and a great leathern bundle, or 'pouch,' as it is technically termed, falls with a dull thud upon the floor. Formerly the pouch remained in the net, and had to be pulled in—no easy task, if, as is sometimes the case, four or five were picked up at one station. Latterly, by a recent improvement in the apparatus (which after nearly forty years' progress towards perfection now seems to leave little further to be desired), the net catches the pouches obliquely, and then the force of the collision causes them to rebound off it straight into the carriage. The present writer was standing and watching the operation within a few feet of the opening. 'You had better,' said the official, 'move a little further off; it was only a week or two back that a pouch flew up and broke the lamp glass just over your head.' I obeyed without discussion. Certainly, if anyone wishes, without experiencing one, to know what a collision at 50 miles an hour means, he should feel the shock caused by four pouches, weighing perhaps two hundredweight, and then imagine what it would be if that was multiplied by 2,000 to arrive at the weight of an ordinary train. The pouches are of the thickest and toughest hide, bound round with straps hardly slighter than the traces of a set of carriage harness, and they are suspended to the post whence the nets sweeps them off with fastenings of iron as thick as

a man's finger. And yet scarcely a night passes in which three or four pouches are not crippled, the iron snapped short off, or the buckles of the strap torn right out of the stitching. Mails are put out much the same way as they are taken in. They are wrapped up in a pouch and hung out from an arm on a level with the footboard of the carriage, and caught by a net only a foot or two above the

INTERIOR OF KITCHEN OF THE LIVERPOOL-EUSTON AMERICAN
BOAT TRAIN.

level of the ground. At most stations bags are put out and taken in simultaneously. . . . 'But how,' I asked—and my readers will doubtless be inclined to ask the same question—'do you know in a pitch dark night, possibly in a dense fog, when it is time to let down the apparatus?' The answer was that everything was done not by sight, but by sound. With a thorough knowledge of the ground and of

the speed of the train, a practised ear can tell at any moment what point has been reached.

The hollow reverberations of the water-troughs between Pinner and Bushey no one could fail to recognise. North of Watford a tunnel forms the 'mark' for Tring; approaching Nuneaton the 'mark' is unmistakable. We have hardly passed through an arch under a wide roadway, when a bridge over the canal rings under our wheels. Then comes the echo of another arch above us. Out goes the net and in come tumbling the Leicester and Coventry and Nuneaton bags. . . . The pouches are no sooner on board than they are hastily opened, the bags extracted and unsealed, and their contents transferred to the sorters in the adjoining carriages. The sorting does not differ very materially from that which may be seen any day at the General Post Office. The same process of facing, stamping and sorting into innumerable pigeon-holes goes on in both places at a speed that to an outsider seems almost miraculous. . . .

We reach Tamworth at 10.55, and there from the Midland line, which at this point passes over our head, we take in hamper after hamper of parcels, and sack after sack of mails, which Midland trains have brought from Plymouth and Bristol on the one side, and from Lincolnshire and the Eastern Counties on the other. What we have to put out is, of course, less, but still the bulk is considerable. Five minutes is all the time allowed, but, let the men work as hard as they like, only one hamper can get out of the door at once; so it is two minutes past eleven before we are under weigh once more. 'What about the Birmingham mails?' we ask, as half an hour later we whiz through Stafford without slackening speed. At Crewe we learn the answer. The Irishman has stopped at Stafford and picked up the Birmingham bags, and here it is waiting to transfer them to us, and to

receive from us in return all the Irish and North Wales letters that we have collected and sorted on our way down. The postal train, after putting out the London letters which it has received by means of the apparatus, to be called for in an hour by the up mail, and also its Manchester mails, proceeds on its way north to Preston and Carlisle." The foregoing account of Mr. Acworth's gives a vivid picture of the working of the first exclusively postal train in the world; from its start the train was a great success, and the running of this train has indisputably earned for the London and North-Western the title of "the Royal Mail Route."

The Parliamentary Bill obtained in 1885 included powers for a new railway between Weedon and Daventry, widenings of the Yorkshire line between Marsden and Golcar, various new powers and agreements with the Great Western, Lancashire and Yorkshire, and the Brecon and Merthyr Companies; and new capital powers amounting to half a million, with a further £166,600 on loan. But undoubtedly the most important Parliamentary business of the session was the sanctioning, after an enormous fight, of a Bill for the construction of a Ship Canal to Manchester. The railway interest was up in arms against this threatened diversion of a large part of the traffic between Liverpool and Manchester, and the North-Western, like other companies, strongly opposed the measure, Mr. George Findlay giving evidence against it. A Bill for the construction of the canal had been before Parliament in 1883 and 1884, but both times it had been rejected; in 1885, however, it successfully passed despite all opposition, and so the North-Western had the prospect of having to face in a few years cheap water competition between Liverpool and Manchester, in addition to the already keen rail competition of the Cheshire Lines and the Lancashire and Yorkshire Railway.

The gross receipts for the year 1885 again showed a decrease, and the dividend also showed a decrease, being at the rate of $6\frac{1}{2}$ per cent. per annum, as compared with $6\frac{3}{4}$ for 1884, and $7\frac{1}{2}$ for 1883.

The year 1886 was not a very remarkable one in the history of the London and North-Western. The new openings included an extension of the joint line with the Great Western in the Wirral peninsula from Parkgate to West Kirby, a distance of twelve miles, the opening of which took place on the 19th of April; a loop line to relieve the Yorkshire line, from Stalybridge to Diggle, which was opened on the 1st of July; and a new station at Morecambe, which gave the North-Western a terminus of its own and superseded the use of the Midland station.

One of the most important events in the year was the decision of the Board to change again their system of brake. It will be remembered the North-Western had fitted its stock with a system of brake known as the Clarke and Webb chain, but this brake had failed to comply with the requirements issued by the Board of Trade, and so in 1882 the Board had decided to adopt the 'simple vacuum' as the standard brake. Unfortunately, however, this turned out to be a wrong choice, and within a very few years a new brake, with its consequent expense of fitting, had to be adopted. The simple vacuum was far from satisfactory, and the culminating point was reached when a train fitted throughout with the simple vacuum refused to stop at Carlisle and dashed through the station and finally collided with a Midland engine which was standing some 300 yards from the station. The failure of the brakes was caused by ice having collected in the pipes.

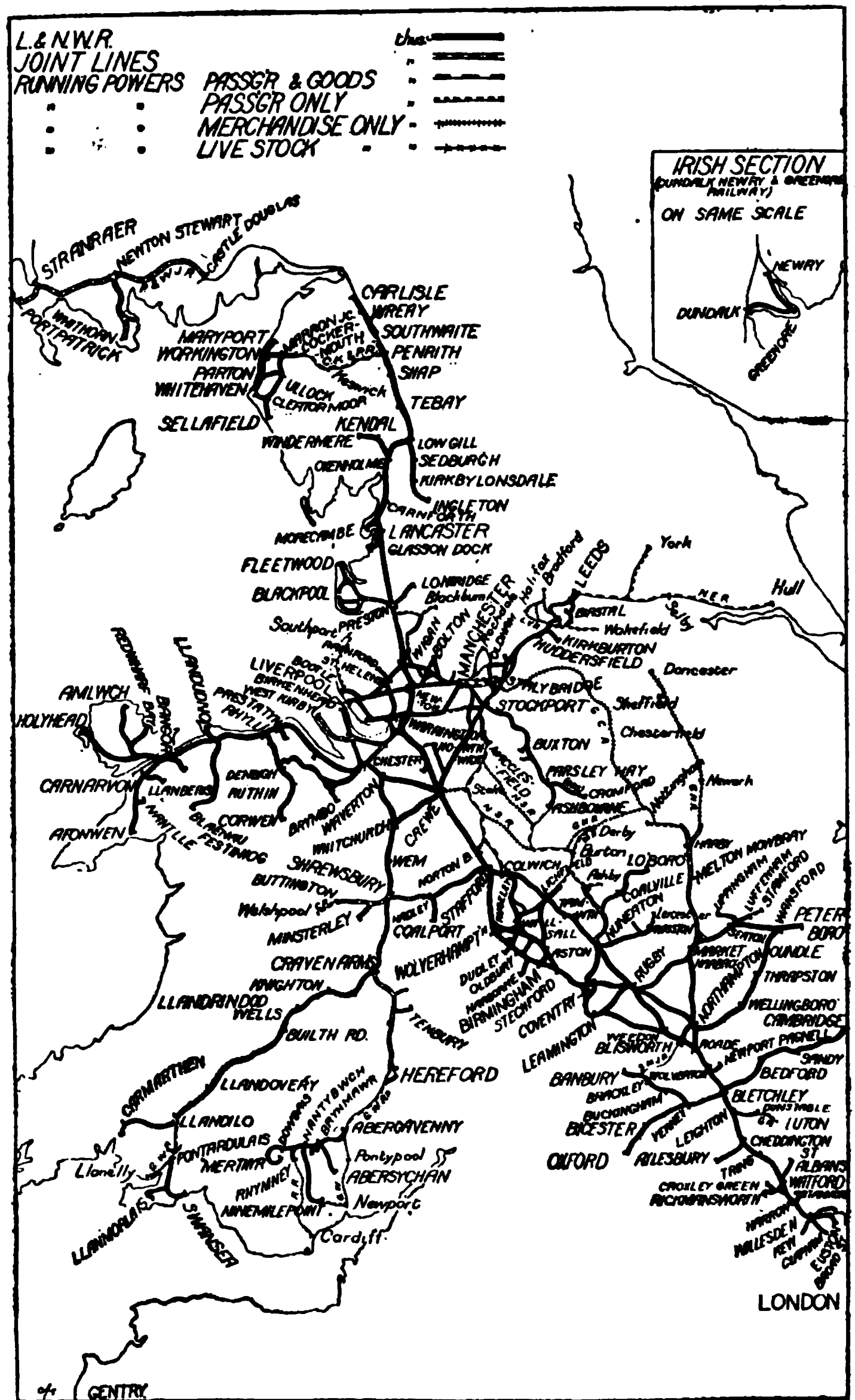
Under these circumstances it is not surprising that the Board decided on a change of brakes, and

adopted the automatic vacuum, which has generally come to be regarded as the standard brake of this country. While on the subject of brakes it may here be said that the North-Western's ally, the Caledonian, did not adopt the automatic vacuum, but fitted its stock with the Westinghouse brake. The two partners having thus adopted different systems, much duplicate fitting of the West Coast joint stock was necessitated.

In the course of this year a Railway and Canal Traffic Bill was introduced into Parliament by Mr. Mundella, President of the Board of Trade; this Bill obtained certain obnoxious clauses and aroused enormous opposition from the railway companies. Many of the railways, including the North-Western, held meetings at which resolutions protesting against the Bill were unanimously passed. The Bill, however, did not pass, for the Government fell before it could be made law. As far as the London and North-Western was concerned, the session of 1886 was a blank one, as for the first time in its history the Company had not a Bill of its own in Parliament.

The gross receipts for the year was £4,856,106 for the first-half, and £5,497,621 for the second half; the dividend showed a slight reduction, being at the rate of $6\frac{1}{4}$ per cent., as against $6\frac{1}{2}$ for the previous year.

The year 1887 was the Jubilee of Queen Victoria, and also the Jubilee of the opening of the Grand Junction Railway; and this memorable year was suitably commemorated by the Company. Great festivities in honour of the occasion took place at Crewe, and in July Sir Richard Moon, the Chairman of the Company, on whom a Baronetcy was conferred at the time of the Jubilee honours, presented to the town of Crewe, as a gift from the Company, a magnificent public park; the gift was received on behalf of the citizens of Crewe by the



Mayor, which position was held during the Jubilee year by Mr. F. W. Webb, the Mechanical Engineer of the London and North-Western Railway. On either side of the entrance to the park was placed temporarily a pedestal, on which were exhibited Engine No. 1, built at Crewe, and Engine No. 3000. A large banquet took place, speeches were indulged in, and the freedom of the town was presented to Sir Richard Moon. We will not attempt to give an historical sketch of the rise of Crewe, suffice it to say that Crewe is absolutely the creation of the Railway. When the Grand Junction removed its works from Edge Hill to Crewe in 1843, there was not even an hamlet there. The town grew up around the railway as a necessary corollary to the establishment of the works there. At one time or another the Company has done much, one might almost say everything, for Crewe; it has built streets and it has built houses, it has constructed churches and schools, it has erected an hospital, it has furnished the gas for lighting, and it has supplied the town with a water supply. At first, in addition to locomotives, carriages and wagons were also dealt with at Crewe, but in 1853 the wagon department was removed to Earlestown, and in 1859 the carriage department was transferred to Saltley near Birmingham, where it remained until it was removed to Wolverton. In 1877 locomotive building was given up at Wolverton and the locomotive work was concentrated at Crewe. What the Company has done for Crewe, it has also done in a lesser degree for Earlestown and Wolverton. When the Grand Junction opened its works at Crewe, in 1843, it employed about 160 men; at the year of the incorporation of the London and North-Western Railway, namely, 1846, the number of men employed by the railway was six hundred, and the population of the town was two thousand; by 1850 the population

reached four thousand, by 1860 it was eight thousand, by 1871 it was nearly eighteen thousand, and by 1881 it exceeded twenty-four thousand. We will here anticipate matters a little, and give some later figures in the growth of the town: In 1891 the population was over twenty-eight thousand, and after this the area of the borough was increased; in 1901 the population was forty-two thousand, and to-day it exceeds forty-five thousand. The creation of such a town by an incorporated company stands unique in the annals of the development of Britain, and is a feat of which the London and North-Western Railway may justifiably be proud.

Much as we would like to deal more fully with Crewe, we must return to the year 1887, and chronicle the events of that year.

The chief Parliamentary powers which the Company obtained were for the absorption of the Cromford and High Peak Railway, a mountainous line with immense gradients worked by ropes and stationary engines, which the Company had worked for some time, and a revival of powers for a Buxton and High Peak Junction line. In addition to these the Company sought and obtained powers for new railways at Bamfurlong and Morecambe south junction, and widenings of the Lancashire Union line. The gross receipts for both half-years showed an increase, but the expenditure also showed an increase; however the dividend was slightly increased, being declared at the rate of $6\frac{1}{2}$ per cent. per annum, as against $6\frac{1}{4}$ per cent. per annum for the preceding year.

The principal new openings on the North-Western which took place during 1888, were a line from Weedon to Daventry, opened in March, and a short connecting line from near Lancaster to the Morecambe branch, opened in May, which greatly improved the North-Western's access to Morecambe from the South.

The year 1888 was a most interesting one from a railway point of view. The most interesting events of the year were the "Railway Race" to Edinburgh and the inauguration by the North-Western and Great Western jointly of a new service of express trains between the North and West of England. The "Railway Race to Edinburgh," as most people are aware, took place between the West Coast and East Coast routes; the race to Edinburgh, together with the subsequent race to Aberdeen, will be found fully dealt with in the next chapter. The inauguration of the new North and West expresses was a natural outcome of the construction of the Severn Tunnel. The Severn Tunnel, which was over 4 miles long and by far the longest tunnel in the country, was opened by the Great Western in 1886, its chief object being to shorten the distance between London and South Wales. Previous to the opening of the Severn Tunnel, for passenger traffic at least, there had been only one route between Bristol, which was the key to the West Country and the North of England, namely, the Midland Company's Bristol and Derby main line; but on the opening of the Severn Tunnel all this was changed, and a second good route between Bristol and the North came into being. In July, 1888, the London and North-Western and Great Western Railways inaugurated a system of joint expresses running between Bristol and Crewe, *via* Hereford and Shrewsbury, with through carriages beyond Crewe to Liverpool, Manchester, Leeds and Glasgow.

This was not the only cross-country service in conjunction with a 'foreign' company which the North-Western inaugurated during the year, for in June it started, jointly with the Great Eastern Railway, a through daily express between Birmingham and Harwich *via* Rugby, Peterboro' and Ely, connecting at Harwich with the Great Eastern

Company's steamers to the continent, thus providing an expeditious route between the Midlands and Holland, Belgium and Germany.

During this year two railways, which for all practical purposes had for long formed part of the London and North-Western and Lancashire and Yorkshire systems, being worked by the two latter companies, although nominally retaining their independence, were dissolved and definitely vested in the working companies. These two railways were the North Union, from Wigan to Preston, and the Preston and Wyre, which ran from Preston to Blackpool and Fleetwood. On the 1st of July all the shareholders in the North Union received sixty ninety-fourth parts of London and North-Western 4 per cent. debenture stock and thirty-four ninety-fourth parts of Lancashire and Yorkshire 4 per cent. debenture stock. On the same date the Preston and Wyre shareholders received new 4 per cent. debenture stock, equivalent to their holding, made up of one-third London and North-Western stock and two-thirds Lancashire and Yorkshire stock. Thus the London and North-Western was the predominant partner in the district where its interests were greatest, namely, in the North Union district, and the Lancashire and Yorkshire was predominant in its sphere of influence, the Fylde district.

Brief mention must be made of the extraordinary fog which enveloped most of the country for nearly a week at the beginning of the year (January, 1888). The fog was one of the worst ever known and seriously impeded the working of the railways. It is recorded that on the London and North-Western fogmen were stationed at 2,462 signals, while altogether 3,752 men were employed. It speaks volumes for the organisation and efficiency of the North-Western that during the week hardly any of the expresses was over half

THE 3,000TH LOCOMOTIVE BUILT AT CREWE WORKS. A 'DOUBLE
END' TANK ENGINE, ON WEBB'S 3-CYLINDER COMPOUND SYSTEM.

an hour late, while not a single serious accident occurred during this trying period.

There were several important railway measures in Parliament this year which must be recorded. In May, Mr. Watt moved a resolution, "That in the opinion of this House the time has arrived when the Government should appoint a Committee or Royal Commission to take into consideration the question of acquiring the railways of the United Kingdom in accordance with the provisions contained in the General Railway Act of 1844." Needless to say the resolution was defeated. Unfortunately another matter, affecting the railway

0-6-0 SHUNTING ENGINE, WITH RECTANGULAR SADDLE TANKS.

interest, fared better this session. This was the "Railway and Canal Traffic Act of 1888," which, amongst other things, contained some clauses concerning the revision of rates, which were rather hard on the companies. The North-Western obtained a Parliamentary Act of its own this session, which, besides providing for the dissolution and transfer of the North Union and Preston and Wyre Railways, contained powers for a new railway at Stalybridge, a long new tunnel at Standedge, and widenings of the lines between Edge Hill and Speke, and between Euxton and Standish. The gross receipts for the year showed a considerable increase, and the dividend was at the rate of $6\frac{3}{4}$ per cent. per annum, an increase of $\frac{1}{4}$ per cent. over that for the preceding year.

The year 1889 does not call for much notice. In April the Soho, Handsworth and Perry Barr line was opened. This was a short connecting line with numerous junctions situated in the Birmingham neighbourhood, and greatly improved and facilitated the working of certain traffic in the district. Widened lines were also brought into use during the year over the great viaduct at Stockport, and between Heaton Norris and Denton, between Soho and Handsworth, and between Rhymney Bridge and Dowlais.

It was during this year that dining-cars made their first appearance on the London and North-Western. These saloons, which ran on six wheels, were first placed on the Manchester-London service, running on the 5.30 p.m. train from each end. These dining saloons immediately leapt into public favour, and the next month a luncheon train, in addition to the dining train, was placed on the Manchester service, while luncheon and dining saloons were also put on the service between London and Liverpool.

The North-Western obtained a Parliamentary

Act this year, but it contained no powers of any great importance. The gross receipts for the year showed a very considerable increase, the receipts for the second half exceeding for the first time in any one half year the six million mark; and the dividend also showed a considerable increase, being at the rate of $7\frac{3}{8}$ per cent. per annum, as against $6\frac{3}{4}$ per cent. for the previous year.

Like 1889, 1890 was not a very important year in the history of the London and North-Western Railway. The Harrow and Stanmore Railway, which the North-Western undertook to work, was opened on the 18th of December. This was a small line formed in 1886 to construct a line between the places named in its title, its authorised capital was £60,000 with £20,000 on loan, but this was afterwards reduced to £36,000 with £12,000 on loan. Other works worthy of mention which were brought into use during this year, were the widening of the line between Rainford and St. Helens, and the enlargement of the joint station at Chester.

During this year the Great Forth Bridge, one of the greatest engineering wonders of the world, was opened, and although, strictly speaking, this event had nothing to do with the domestic history of the North-Western, yet it nevertheless had a considerable bearing on certain events connected with the subsequent history of the company. The opening of the Forth Bridge gave to the East Coast partners for the first time the shortest route to Perth, Dundee, Aberdeen and Northern Scotland, and to the opening of the Forth Bridge is directly traceable the Railway Race to Aberdeen, which occurred a few years afterwards.

The year was unfortunately marred by an accident which occurred at Carlisle. The 8.0. p.m. express from Euston dashed through Carlisle station and collided with a Caledonian engine, the

result was that 4 persons were killed, while 13 were more or less seriously injured. The company's Bill obtained during this year contained powers for several new railways, including Willesden Junctions, Daventry and Leamington, Seaton and Uppingham, Warrington Junctions,

ROLLING AXLES AT CREWE WORKS.

Ashbourne and Buxton; also improvements of Cromford and High Peak Railway, and widenings at Crewe, and between Crewe and Sandbach and between Ince Moss and Wigan. The gross receipts for the year again showed a satisfactory increase, and the dividend was at the rate of $7\frac{1}{2}$ per cent. per annum.

CHAPTER XV.

THE RACE TO EDINBURGH AND THE RACE TO ABERDEEN.

In the last chapter we briefly referred to the Race to Edinburgh, and in this chapter we deal fully with the race, and also with the subsequent Race to Aberdeen. Before we proceed to narrate the events of the contests, we should like to sketch briefly the growth of the rival routes to Scotland, and the events which led up to the two memorable 'races.' The traffic between England and Scotland is one of the great railway plums, and at an early date in railway history this was recognised by promoters, who were anxious to obtain a share of it. Before the great amalgamation which formed the London and North-Western Railway, in 1846, there was great rivalry, as we have seen previously, between the two projected routes, the 'West Coast' *via* Preston, Lancaster, Carlisle, and Annandale (which party, it will be remembered, also had to encounter an opposition scheme from Carlisle to Glasgow *via* Nithsdale), and the East Coast route *via* Rugby, Derby, York, Newcastle, and Berwick. In securing the necessary Parliamentary powers to construct their lines, the race was practically a dead heat. Euston Square was the London terminus for both projected routes, but in 1846 the situation was completely changed, for in that year, as we know, the London and North-Western Railway was formed by amalgamation, and naturally became definitely linked with the West Coast route, while in the same year the Great Northern Railway received its Act of Incorporation, and it became apparent

to all that the 'East Coast' traffic would be diverted to the latter on its opening. Just as the Caledonian was the natural ally of the London and North-Western, so the North-Eastern and North British were the natural allies of the Great Northern, and the Scottish traffic was worked by these 'East Coast' and 'West Coast' alliances. Afterwards the Midland became a third route between England and Scotland, and joined hands at Carlisle with the Glasgow and South-Western for Glasgow traffic, and the North British for Edinburgh traffic, but owing to its much longer and harder route its competition was not very severe, the great rivalry chiefly being between the East and West Coast routes. About the year 1887 the relative position of the two routes was this: For Glasgow traffic the West Coast route was much the more popular, by reason of its shorter mileage, but for Edinburgh traffic, it must be confessed, the position was reversed, for here the East Coast Companies had the advantage of distance. All over Scotland the Caledonian and North British were in keen competition with one another, but in the Central and North-Eastern districts the Caledonian occupied the leading position, which it had done since its absorption of the Scottish Central and Scottish North-Eastern Railways. However, the North British and East Coast Companies had stringent facilities over these lines granted by Parliament. The North British was not satisfied with this secondary position, and by means of the Tay Bridge and the mammoth Forth Bridge, then under construction, it was hoping to gain for itself and its East Coast allies the premier position in Central and Northern Scotland. Such, briefly, was the general position of the East and West Coast routes before the memorable race to Edinburgh occurred. At the end of 1887 the

8-WHEEL EXPRESS LOCOMOTIVE *Queen Empress*, BUILT MAY, 1893. WEBB'S 3-CYLINDER COMPOUND SYSTEM.

quickest train between London and Edinburgh by the East Coast route took 9 hours for the journey, while the best train of the West Coast partners occupied 10 hours, a difference in favour of the East Coast Companies of 1 hour, but to Glasgow the East Coast took nearly 12 hours, while the West Coast only took 10 hours. It will be recollected that in 1872 the Midland Railway had inaugurated a policy of third class by all trains, which had been generally followed by nearly all companies, while some had adopted it with a few reservations. The Irish Mail of the London and North-Western was one of these, and the 10 a.m. Scotch express of the East Coast Railways was another, so it will be seen that the hour's advantage to Edinburgh which the East Coast possessed was only confined to first and second class passengers, as the best third class train of both East and West Coast routes took ten hours. The East Coast Companies, and it must be confessed with good reason, wished to increase their superiority so as to include third class passengers, and accordingly, in November, 1887, they admitted third class passengers to their 'nine hour' Scotch trains. This action, however, at the moment did not elicit any response from Euston, but when Euston did reply the reply was a striking one. In the summer train service for June, 1888, it was announced that the 10 a.m. Scotch express would be accelerated to reach Edinburgh and Glasgow in nine hours. On the face of everything it appears as if the admission of third class passengers to the nine hours' train by the East Coast was merely the excuse for the West Coast acceleration, and the real reason was probably to be found in the approaching completion of the great Forth Bridge and the new competition which loomed ahead. The wish of the London and North-Western to equal the time of its rivals

between London and Edinburgh was quite natural, however, and if justification were needed, it could point to the Great Northern's example in the London and Manchester service, where the Great Northern, although handicapped by a longer and harder route, performed the journey between London and Manchester in $4\frac{1}{4}$ hours, the same time as the London and North-Western, thus transfroming a physical inferiority into an equality in actual running time. The East Coast Companies—and, we must say, quite naturally, seeing that they owned the shortest route—replied to the challenge of the West Coast Companies by knocking half an hour off the time of their train, thus once more securing the advantage, but this time of only half an hour instead of an hour, to Edinburgh. This acceleration was announced to take place on July 1st. For some time the West Coast made no reply, but towards the end of July they announced that on the 1st of August the 10 a.m. *ex* Euston would be accelerated to reach Edinburgh at 6.30 p.m. and Glasgow at 7 p.m., thus taking $8\frac{1}{2}$ hours for the journey from London to Edinburgh, and once again equalling the time of the East Coast. Although this announcement was only made on the 27th of July, the East Coast allies hurriedly made new arrangements, and announced that on the 1st of August the 10 a.m. *ex* King's Cross would be accelerated to reach Edinburgh (Waverley) at 6 p.m., thus taking 8 hours and again securing an advantage of half an hour. The railway race had now begun, and great was the interest taken in it, for racing in any form—and this was a distinctly novel form—generally appeals to Englishmen's sporting instincts; but it was not only in England that the Railway Race was a nine days' wonder, for even in America it was reported at length in the Press.

On the 1st of August the trains of both the East Coast and West Coast Companies arrived in Edinburgh before their booked time. The West Coast allies were now thoroughly roused, and they decided to accelerate again their service. Accordingly, on the 3rd of August, an announcement was made that, commencing on Monday, August 6th, the West Coast train would arrive at Edinburgh at 6 p.m., thus again tying with the East Coast 8-hour train.

On the 6th of August the West Coast train arrived at Edinburgh at 5.52, 8 minutes before time, the journey speed throughout being about 50 miles per hour, but it must be admitted that the train was a very light one, consisting of four coaches, weighing certainly no more than 80 tons, and, in honesty, it must be confessed that the East Coast train was invariably the heavier, usually weighing over 100 tons. The locomotives generally used on the London and North-Western section were a 'single' of the 'Lady of the Lake' type from Euston to Crewe, and a 4-coupled engine for the Crewe-Carlisle section. On the 7th of August the West Coast allies again brought their train into Edinburgh 8 minutes ahead of booked time, and on the 8th 7 minutes ahead. On the 9th, however, the train arrived at Princes Street 37 minutes behind time, which was, unfortunately, caused by an engine failure at Shap; at Preston the train had been 6 minutes ahead, but owing to the engine failure it arrived at Carlisle three-quarters of an hour late, and by dint of good running on its section, the Caledonian, regained 8 minutes. On the 10th the West Coast partners again brought their train into Edinburgh ahead of booked time, although this time it was only 2 minutes, and on the following day it arrived at Edinburgh 4 minutes ahead of time. All this time the East Coast allies had made no reply to the last acceleration of the West

Coast, and the times of the two routes to Edinburgh had been the same since the 6th of August. But now, with the 12th of August over, and its consequent rush to the North finished, the East Coast Railways announced a further improvement of their service on the 13th, and made arrangements to accelerate their train to arrive at Edinburgh at 5.45, giving a $7\frac{3}{4}$ -hour service between London

INTERIOR OF CABIN *de luxe*, STEAMER *Greenore*.

and Edinburgh. The West Coast replied to this by bringing its train into Edinburgh on the 13th 20 minutes ahead of booked time, or 7 hr. 38 min. from London. Next day, however, a conference took place between the rival routes, and a truce was patched up. On the same day the East Coast Companies made the run between London and Edinburgh in 7 hr. 32 min. The racing was now over, and by the terms of the truce the running

times of the routes were fixed at $7\frac{3}{4}$ hours for the East Coast and 8 hours for the West Coast until the end of August, and in September the $8\frac{1}{2}$ -hour standard was reverted to. From the 14th to the 31st of August the Caledonian Railway continued to bring the West Coast train into Edinburgh ahead of time, varying from 2 to 5 minutes in front of the booked time.

The race to Edinburgh was undoubtedly a benefit to the public, as it proved that Edinburgh could be brought within a fraction over $7\frac{1}{2}$ hours of London, but its benefit was somewhat marred by the informal understanding arrived at between the rival routes, which ordained that $8\frac{1}{2}$ hours should be the booked times between the two capitals. The best performances during the accelerated running were on August 13th by the West Coast and on August 31st by the East Coast. The West Coast performed its journey of 400 miles in 427 minutes of running time at a speed of $56\frac{1}{3}$ miles per hour; and the East Coast performed its journey of 393 miles in 412 minutes, or at well over 57 miles per hour throughout. On August 7th the London and North-Western covered the 51 miles between Crewe and Preston in 50 minutes, and the 90 miles between Preston and Carlisle in 90 minutes, while during the run of the East Coast Railways on August 31st it is recorded that four consecutive miles were covered at a speed of over $76\frac{1}{2}$ miles per hour. Who won the race? That is a question that has never been satisfactorily answered, probably because the race was not a race, but was better described as "accelerated running to Edinburgh." The East Coast made the best runs between the two points it is true, but in judging the two routes we must make some allowance for the harder gradients on the West Coast route, the great summits at Shap and Beattock, but, as some set-

off to these, we must remember that the East Coast was almost invariably the heavier train. The result of the encounter was really a draw, as both routes thereafter adopted $8\frac{1}{2}$ hour services between London and Edinburgh, but when we remember that the West Coast was the longer route, the institution of equal timing must be noted as a distinct success of West Coast diplomacy. The Railway Race brought the question of railway speed to the front; up to this time it must be admitted that the London and North-Western had apparently not believed greatly in the value of speed for competitive purposes, and even after this it was some years before it took to heart the lesson taught by the race. The London and North-Western had never gone in for great speed, 40 miles per hour being about its standard speed for express trains, but the race to Edinburgh showed what it could do whenever it was decided to make a greater use of speed as a factor in competitive traffic. On the other hand, the London and North-Western's great rival, the Great Northern, had for its inception clung to the doctrine of speed, and in this respect it was for years *facile princeps*, and in spite of a route to Manchester, some 15 miles further and infinitely harder, it had succeeded, as we have previously seen, in equalling the timings of the London and North-Western's best Manchester trains. Thus, after the race to Edinburgh, we have the somewhat curious sight of the London and North-Western, with the longer and harder route, equalling the time of the Great Northern's best train to Edinburgh, and the Great Northern, with a longer and harder route, equalling the time of the London and North-Western's best train to Manchester. Such then were the chief points of the race to Edinburgh, the $8\frac{1}{2}$ hours timing between London and Edinburgh by both East Coast and West Coast route remained for

some years, until a fresh outburst of speed burst out on the Anglo-Scottish Routes, which soon developed into another race. The 'informal understanding' arrived at between the two routes did not last for many years; in 1890 the North British, in conjunction with its allies, opened the great bridge over the Firth of Forth, and thereby considerably shortened its route to Perth and Aberdeen, and although no actual racing took place on the opening of the Forth Bridge, the rivalry between the East and West Coast Routes continued to be acute; both routes instituted new services of the latest corridor coaches, and both routes placed third class dining cars on their services to Scotland. In 1890, the East Coast allies inaugurated a service between London and Aberdeen, *via* the Forth and Tay Bridges, completing the journey in $12\frac{1}{4}$ hours, and in 1894 the North British accelerated the service to 11 hrs. 35 min., thus making the East Coast Route to Aberdeen a quarter of an hour quicker than the West Coast. The Forth Bridge not only enabled the North British to work its own trains from Edinburgh through to Aberdeen with its own engines, but it also secured for the East Coast allies the shorter, though not very much shorter, route to Perth, Dundee and Aberdeen, places which had always been strongholds of the West Coast allies. The West Coast partners were naturally loath to lose their position in Aberdeen, and although they did not reply to the challenge for some time, in the summer time tables for 1895 they announced that in order to make a better connection with the Great North of Scotland at Aberdeen, the 8 p.m. Scottish express from Euston would from the 1st of July be accelerated to reach Aberdeen at 7.40 a.m., which was just five minutes behind the rival East Coast train. Such was the beginning of the race to Aberdeen. Compared with the previous

race to Edinburgh, the race to Aberdeen was far more in the nature of a real race, for at Aberdeen the Caledonian and North British used the same station, the North British exercising running powers over the lines of the Caledonian from Kinnaber Junction to Aberdeen, a distance of some 38 miles, and so Kinnaber Junction became the winning post, and whichever train was first at Kinnaber was given the line to Aberdeen. As we have said, the West Coast accelerated their 8 p.m. express to reach Aberdeen at 7.40 a.m., but the East Coast Companies were determined to utilise their geographical superiority gained by the construction of the costly Forth Bridge, and small blame to them, and they accordingly met this West Coast acceleration by accelerating their own 8 p.m. from King's Cross to arrive at Aberdeen at 7.20 a.m. The running of this train raised a very important point, as this was the first train, since the informal understanding of 1888, to be run between London and Edinburgh in less than the agreed $8\frac{1}{2}$ hours. The West Coast allies naturally objected and proclaimed it a breach of the informal understanding, to which the East Coast partners rejoined that the understanding of 1888 was only in regard to day trains and was never intended to apply to night trains. And so the breach once started quickly widened, and a new outburst of rivalry took place. To the impartial observer it must be evident that all the right was not on one side, neither was all the wrong on the other, but that a good case could be made out for either side, and it must be admitted that it seemed hard to tie down the East Coast Railways to an $8\frac{1}{2}$ hour standard between London and Edinburgh, seeing that all the East Coast trains for Glasgow, Perth, Aberdeen and all Scotland had to pass through Edinburgh, whereas Edinburgh was a terminus for West Coast trains, and so the "understanding" did



MAP SHOWING LONDON AND NORTH-WESTERN RAILWAY AND CALEDONIAN RAILWAY ROUTES OF THROUGH LONDON AND NORTH-WESTERN RAILWAY COACHES AND LONDON AND NORTH-WESTERN RAILWAY STEAMER ROUTES.

not affect any other of the latter's timings. Therefore, after the Forth Bridge was constructed it was only natural that the East Coast allies should wish to gain some benefit from the possession of the shortest route, whilst it was also natural that the West Coast partners should wish to retain their superiority in places in which they had hitherto been supreme; and these antagonistic views being well-nigh irreconcilable, the East Coast and West Coast Routes proceeded to solve their difficulties by a trial of strength. With the East Coast train arriving in Aberdeen 20 minutes ahead of the West Coast train, the London and North-Western and Caledonian felt that something must be done to regain the prestige of the West Coast route, and accordingly on the 15th July London awoke to find the well-known North-Western parcel vans, and Euston and many other places, placarded with enormous posters announcing that on that same night the West Coast train would reach Aberdeen from London in 11 hours, thus converting a disadvantage of 20 minutes into an advantage of a like amount. On the night of the 15th the West Coast train made a considerably better run than the time table promised, and arrived at Aberdeen at 6.46 a.m., 14 minutes ahead of booked time, but better was yet to follow for the next night. The West Coast train made an even better run, steaming into Aberdeen station at 6.21 a.m., or 39 minutes ahead of schedule time. The reply of the East Coast Railways was made on the 22nd of July, when they announced that the East Coast train would arrive in Aberdeen at 6.45 a.m., thus taking 10 hrs. 45 min. for the journey, and beating the booked time of the West Coast by 15 minutes. The West Coast allies put out no answering challenge to this, they had already shown what they could do by bringing their train into

Aberdeen 39 minutes ahead of their booked time, and from now onwards they ignored the existence of any time table, and set themselves to the task of bringing the West Coast train into Aberdeen in front of the East Coast train irrespective of any booked times; and so successful were their efforts that they achieved their object every day for a week. On the 29th, however, the East Coast announced a further acceleration of 20 minutes, and on the morning of the 30th the East Coast train drew up in Aberdeen station at 6.20, but the West Coast train had already been there for 15 minutes, although in the official posters the West Coast train was announced to arrive in Aberdeen at 7.0 a.m. On the following morning the West Coast train arrived at 5.59 a.m., and the West Coast continued to be first in Aberdeen every morning, although on the 15th of August the West Coast was only about a minute ahead at Kinnaber Junction. On the morning of the 19th, however, it is recorded that the 'be ready' bells of the East and West Coast trains rang simultaneously in Kinnaber signal box, and the signalman, who was of course an employee of the Caledonian, as they owned the line, gave the preference to the foreign train, and on that morning the East Coast train arrived first at Aberdeen at 6.17 a.m. On the 16th the East Coast partners had announced that, commencing on the 19th, their train would arrive at Aberdeen at 5.40 a.m., which was 19 minutes quicker than the previous best run of the West Coast and on the night of the nineteenth the East Coast train with its new timing made a magnificent run, and arrived at Aberdeen five minutes ahead of booked time at 5.31 a.m., but the West Coast train had already been there for a quarter of an hour. On the next night the West Coast train again kept up its victorious reputation, arriving at Aberdeen at 4.58 a.m., followed by the East Coast train at

5.11 a.m. On the night of August the 21st the East Coast partners determined to make a strenuous effort to reach Aberdeen first; the train made a magnificent run and reached Aberdeen at 4.40 a.m., nearly a quarter of an hour ahead of the West Coast train which arrived at 4.54½ a.m. These were so far the best timings and represented a speed of over 60 miles per hour on both routes. Though the average speed on the West Coast was slightly higher, notwithstanding its later arrival at Aberdeen, by reason of its longer mileage. After their record run, the East Coast Railways gave up racing and a truce was arranged between the rival routes which gave to the East Coast an advantage of thirty-five minutes. The West Coast allies were loath to give up accelerated running while the East Coast held the palm for the London-Aberdeen run, and so they decided to make an exhibition run on the night of the 22nd. The West Coast train was cut down to its lightest possible load and made a magnificent run, arriving at Aberdeen 8 hours 32 minutes after leaving London, and beating the previous best run of the East Coast, although it had 16 miles farther to go, by eight minutes. The journey was performed at an average speed of 63½ miles per hour throughout. Although there was a doubt as to who won the race to Edinburgh in 1888, there was no such doubt as to who made the best performance during the race to Aberdeen. There is no doubt that the race to Aberdeen exerted a great influence on the future of British express trains, and that the wonderful speeds attained during the accelerated running, although unfortunately not maintained afterwards, opened everybody's eyes as to railway speed and undoubtedly led to the many accelerations which took place at the close of the nineteenth and the beginning of the twentieth century. On the night of the exhibition run the West Coast allies had

covered the 540 miles between Euston and Aberdeen in 512 minutes with three intermediate stops, and thus Aberdeen was brought as near London as Edinburgh had been before the race commenced. Even when we remember that the loads were light the speeds attained were marvellous, and although it is quite ancient history now, they still seem wonderful, and though we progress onward in most matters, these speeds of 1895 have not yet been equalled in regular long distance running. For the last three nights running the speed of the trains on the West Coast route, which we must remember was a distance of 540 miles, averaged 60·2, 60·5, and 63·2 miles per hour. On the 22nd of August the West Coast train weighed about seventy tons and was hauled from Euston to Crewe by the *Adriatic*, a 7 feet compound, at an average speed of 64·3 for this section; but without question by far the finest piece of locomotive work performed by any of the competitors during the accelerated running was performed by the London and North-Western on the same night between Crewe and Carlisle. The locomotive which hauled the train on the night in question and gained undying fame in the annals of railway history was the *Hardwicke*, a 6 ft. 6 in. four-coupled engine. This engine drew the train from Crewe to Carlisle, a distance of 141 miles at an average speed of 67·2 miles per hour, over an extremely hard road which included the great Shap Summit with a gradient of 1 in 75 for some miles. Truly a wonderful performance! The race to Edinburgh and the race to Aberdeen were the two last struggles in the fight for supremacy in Scotland between the East Coast and the West Coast alliances; we have already seen that from a very early period the struggle had been progressing; in the first instance when both East and West Coast routes depended upon the London and

THE *Rostrevor* OF THE GREENORE SERVICE, IN HOLYHEAD HARBOUR.

Birmingham for access to the Metropolis. There had been a race between the 'East Coast' and the 'West Coast' to secure Parliamentary powers for building their lines. Then in 1846 came the amalgamation of various lines into the London and North-Western and its consequent interest solely in the West Coast route, while the same year witnessed the birth of the Great Northern, which immediately became the London partner of the East Coast route. Then came a great fight for supremacy in Scotland between the Caledonian and the North British, which resulted in the former amalgamating with the Scottish Central and the Scottish North-Eastern Railways, and the latter absorbing the Edinburgh and Glasgow and the Edinburgh, Perth and Dundee Railway, a railway which worked ferries over the Firth of Forth and Tay. The Caledonian, undoubtedly, held the trump card, as the ferries hindered the growth of the North British traffic, and so the latter conceived the idea of bridging the great firths. This it at last succeeded in doing, in spite of one terrible reverse, the fall of the first Tay Bridge, which was one of the most appalling disasters in the annals of railways. Then came the races to Edinburgh and to Aberdeen; and the result of all the scheming and plotting, quarrelling and fighting was to leave the East and West Coast routes practically on an equality in Scotland. To the West of Scotland and Glasgow, where the great bulk of the population is, the West Coast is decidedly the shorter route, while to Edinburgh, Perth, Dundee and Aberdeen, the East Coast has the shorter route, but in a less degree than is the case of the West Coast route to Glasgow.

CHAPTER XVI.

1891—1902.

THE SIXTH ROUTE TO THE NORTH—RESIGNATION OF SIR RICHARD MOON—A CHAPTER OF ACCIDENTS—DEATH OF SIR GEORGE FINDLAY—THE CHELFORD DISASTER—VARIOUS IMPROVEMENTS—NEW ROUTE TO MANCHESTER—THE “GREAT CENTRAL”—CREWE TRANSHIP SHED.

The year 1891 witnessed a determined attempt made to form yet another great trunk route between London and the North of England. We have seen in this history how the London and North-Western Railway (and its predecessor the London and Birmingham), from the position of being the only route to the North, gradually became surrounded by competing routes. In 1846 the Great Northern Railway was incorporated and thus a second route between London and the North became authorised; in 1852 the Great Western Railway reached Birmingham, and subsequent extensions carried it on north-westwards to the banks of the Mersey. In 1868 the Midland Railway, the most important provincial company in the country, which had always been dependent on the London and North-Western for its access to London (though since 1858, it is true, it had also made use of an alternative route *via* Hitchin and the Great Northern Railway), opened a line into London, and became keen competitors with the London and North-Western all over the country. The next line to form itself into a North and South trunk route was the Great Eastern Railway, which

in 1878 entered into a scheme with the Great Northern Railway for a series of joint lines between March and Doncaster. Previous to this the Great Eastern's energies had been confined to the agricultural counties of East Anglia, but by this scheme it became a competitor, for goods traffic at all events, in the manufacturing districts of Yorkshire and, to a lesser degree, of Lancashire also. Thus there were five main trunk routes competing for the traffic between London and the North, and in the session of 1891 a Bill came before Parliament which had for its object the construction of a sixth trunk route. The promoters of the Bill were the Manchester, Sheffield and Lincolnshire Railway, and the man behind the Bill was Sir Edward Watkin, who was chairman not only of the Manchester, Sheffield and Lincolnshire, but also of the Metropolitan, East London, South-Eastern and Channel Tunnel Railways, and who was credited with the scheme of forming these lines into a main route from the North of England through London to the Northern coast of France!

In the ever-changing position of railway politics, it is interesting to recall the fact that in its early days the Manchester, Sheffield and Lincolnshire Railway had been a satellite of the London and North-Western, just as the Midland had been, whilst its chairman, Sir Edward Watkin, had received his early training at Euston Square. The Sheffield Company had never suffered from a superabundance of this world's goods, and had eked out a somewhat precarious existence; at length the Board had persuaded itself that the only way to achieve prosperity was by the construction of a great new trunk line. It cannot be said the promotion of a line to London came upon the other railways altogether as a surprise, for the "Sheffield" had already secured powers for a line from near Sheffield running southwards into

Nottinghamshire, while the Metropolitan Railway, another of Sir Edward Watkin's lines, had for some time been gradually creeping out of London in a north-westerly direction, pointing towards the "Sheffield's" southern extension. The Manchester, Sheffield and Lincolnshire Extension to London Bill, which proposed to join up the lines of

SIR GEORGE FINDLAY.

the Sheffield with those of the Metropolitan, aroused the very greatest opposition; needless to say the London and North-Western opposed this threatened competition, and in this it was joined by the Great Northern and Midland Railways. The Bill came before a House of Commons Committee on 17th April, 1891, and provoked a battle more

reminiscent of the early days of railways. We will not attempt to follow the bill before the Committee, suffice it to say that on the 16th June the Chairman gave the Committee's decision, which was that the preamble was not proved. Though unsuccessful at the first attempt the "Sheffield" authorities announced their intention of again seeking Parliamentary sanction for its scheme; and to anticipate matters a little, by Act of 28th March, 1893, the Manchester, Sheffield and Lincolnshire Extension to London Bill was authorised. Thus a sixth route became authorised between London and the North.

At the beginning of this year, in February, the Company suffered a severe loss by the resignation of Sir Richard Moon from the chairmanship. Sir Richard Moon, who was born in 1814, had been elected to a seat on the Board in 1847, a year after the amalgamation which had given birth to the London and North-Western Railway had taken place. In 1861 he had been elected to succeed Admiral Moorsom as chairman of the Board, a position which he had held for nearly thirty years. Sir Richard Moon was one of the greatest of British Railway administrators, and it was during his tenure of office that much of the London and North-Western system was built up and a policy pursued which has given to the company the premier position which it now occupies. When Sir Richard Moon assumed the chairmanship, the company was paying $4\frac{1}{4}$ per cent. on its ordinary stock; when he resigned, it was distributing 7 per cent. When he took up the reins of office the gross receipts were £4,479,414 for the year; when he laid them down the gross receipts were nearly twelve millions for the year; figures which speak for themselves. At the half-yearly meeting, the Right Hon. W. H. Smith, M.P., Conservative leader in the House of Commons, made a speech on behalf of his fellow-shareholders, conveying to

Sir Richard Moon their hearty thanks for his devoted services to the company, which extended over a period of more than forty years. Lord Colville of Culross, the chairman of the London and North-Western's great competitor—the Great Northern Railway—seconded the resolution, which was put to the meeting and carried unanimously.

Sir Richard Moon was succeeded in the chair by Lord Stalbridge. Lord Stalbridge was the second son of the second Marquis of Westminster; as Lord Richard Grosvenor he had sat as a Liberal for Flintshire in the House of Commons from 1861 to 1886; from 1872 to 1874 he had been Vice-Chamberlain of the Royal Household, and from 1880 to 1886 he had been Patronage Secretary to the Treasury; in 1886 he had been raised to the peerage as Baron Stalbridge. His connection with the London and North-Western Railway extended back to 1870, in which year he had been elected to a seat on the Board.

During this year the London and North-Western took over the undertaking of the Central Wales and Carmarthen Junction Railway, which extended for some thirteen miles between Llandilo and Carmarthen. This line had had a most chequered career; originally it had formed part of the Llanelly Railway, but in 1871, together with some lines near Swansea, it had been incorporated as a separate undertaking under the title of the Swansea and Carmarthen Railway. This altered state of affairs did not last very long, for in 1873 the London and North-Western Railway, which was about that time trying to strengthen its hold on South Wales, obtained powers to purchase the Swansea portion of the undertaking for the sum of £310,000; at the same time the name of the remaining Carmarthen section was changed to the 'Central Wales and Carmarthen Junction Railway.' The purchase price which the North-Western

agreed to pay for this undertaking was £137,500, which it was arranged, after meeting all prior charges, should be distributed to the shareholders at the rate of 62 per cent. of their holdings to the first preference, 31 per cent. to the second preference, and $15\frac{1}{2}$ per cent. to the ordinary shareholders, any balance to go to the first preference. Thus ended the extraordinary career of this little line, which, we venture to say, is almost unique in British Railway history; first, part of the Llanelly Railway, then Swansea and Carmarthen Railway, next Central Wales and Carmarthen Junction Railway, and finally part of the great London and North-Western.

The process of widening the lines all over the system to meet the increasing demands of the traffic still went on, and in the course of this year widened lines were brought into use between Marsden and Huddersfield, between Speke and Edge Hill (thus completing four lines between Liverpool and Widnes), between Aston and Vauxhall in the Birmingham neighbourhood, and an additional line on the Sirhowy section in South Wales.

This year for the first time dining cars were run on the West Coast route to Scotland, these being placed on the 2 p.m. trains from Euston and Glasgow.

The Irish service also received attention this year, and some accelerations were made.

The London and North-Western's new Parliamentary powers for the year do not call for much notice. These provided for new railways at Peasley Cross and Buxton, confirmation of an agreement with the Harrow and Stanmore Railway, and for the vesting of the Central Wales and Carmarthen Junction.

The North-Western also had a Bill in Parliament confirming the new provisional order of the

Board of Trade respecting the classification and schedule of goods rates. The North-Western's order came before a Joint Committee of the two Houses, and occupied some time in its hearing. The North-Western's was the first order taken, and it was arranged that it should be taken as a model for the other companies' orders. This order, in accordance with the provisions of the Railway and Canal Traffic Act of 1888, which had excited keen opposition from the Railways, entailed a new schedule and classification of rates and for

COMPOSITE SLIP COACH, WITH GUARDS' COMPARTMENTS AT ENDS, NON-SMOKING AND SMOKING COMPARTMENTS
AND LAVATORY ACCOMMODATION FOR BOTH FIRST AND THIRD CLASS PASSENGERS.

a company like the London and North-Western necessitated a colossal amount of work. The gross receipts again showed an increase for the year, and the dividend was at the rate of 7 per cent. per annum.

New openings during 1892 were conspicuous by their absence. In March a short branch between Mold and Coed Talon, which had been used for goods traffic for some time, was opened as a passenger line. In the course of the year the North-Western, jointly with the Great Western, absorbed a small independent concern, called the Ludlow and Clee Hill. This latter line was about 6 miles in length and ran from Ludlow on the Shrewsbury and Hereford line to Clee Hill. As the two companies had been working the line for some considerable time the change was one in name only. Works brought into use during the year included an enlargement of Euston Station, and also of the station at Llandudno, a seaside resort on the North Wales Coast, which was fast growing in popularity. The work of increasing the goods accommodation at Broad Street in the City was also undertaken.

During this year the London and North-Western, in conjunction with the Lancashire and Yorkshire Railway, made a new departure, and placed on the Fleetwood-Belfast service a magnificent new twin-screw steamer, the *Duke of Clarence*; previous to this the Channel boats had all been paddle steamers. The *Duke of Clarence* was a magnificent boat, having a length of 320 feet, a breadth of 36 feet, a gross tonnage of 1,489 tons, and a speed of $18\frac{1}{2}$ knots; the ship was an instantaneous success, and others of the same class were built.

The year 1892 was marred by a series of four unfortunate mishaps, involving loss of life which occurred on the North-Western system, only two of which were due to the moving of trains. The

first of this series occurred on 13th January, when a disastrous fire broke out at Leeds New Station. The Leeds Station, which it will be remembered is joint with the North-Eastern, is built on the top of a series of arches, under the station flows the River Aire and the Leeds and Liverpool Canal, and the arches are used as warehouses. It was in these arches that the conflagration originated, and the fire burnt furiously for two days.

All traffic, it goes without saying, was stopped, and efforts were directed at saving the station superstructure; these proved fairly successful, for, despite the buckling of the permanent way owing to the intense heat beneath and the caving in of the station floor in some parts, not much damage was done. Only one life was lost, which was caused by the collapsing of the platform. The fire, as we have already said, occurred on the 17th January, and by March the station had been repaired and ordinary working resumed.

The next of this series of accidents took place on the 18th of April, and like the last mishap, it was not due to the moving of trains. The 18th of April was Easter Monday, and as usual large numbers of Londoners flocked to Hampstead Heath to spend their Bank Holiday; towards evening a storm came on and a rush was made to Hampstead Heath Station. The platform at Hampstead Heath was reached by a staircase, at the bottom of which was a ticket collector's box, leaving a passage way of only 3 ft. 6 in. Down this staircase, towards the already crowded platform, the crowd surged, sweeping all in front of it; the result may be imagined, and a scene pictured approximately that of the army of Lars Porsena, when "those behind cried 'forward!' and those before cried 'back'!" This ghastly catastrophe only took a few minutes in happening, and when the crowd had been driven back it was found that

there was a death-roll of eight, while twenty-two persons had been more or less seriously injured.

The next of this unfortunate cycle of disasters took place on the 27th of May, at a spot near Birmingham, where the Midland line from Derby joins the London and North-Western main line from London, when the 2.10 express from Euston to Birmingham collided at the junction with the 3.45 Midland train from Derby to Birmingham, while

INTERIOR OF FIRST-CLASS DINING CAR.

both trains were running at a fair rate of speed. The Midland train was a little in advance at the junction and the London and North-Western engine struck the side of a horse box next to Midland engine. The shock freed the Midland engine, which ran forward unharmed; the North-Western engine was derailed and ran along the line which was here on a viaduct, ultimately dashing

through the parapet and falling 30 feet on to the ground below, while both the Midland and North-Western trains were derailed. The guard on the North-Western train was killed, the driver and fireman seriously injured, and forty-two passengers more or less seriously hurt; on the Midland train a groom in the horse box was killed, and twenty-four passengers injured. At the Board of Trade inquiry, it was proved that the signals were set right for the London and North-Western train. After this accident the work was undertaken of constructing two new lines, which carried the Midland line under the North-Western main line and on into Birmingham, thus freeing the London and North-Western line of Midland traffic, and giving the latter an independent route into Birmingham.

The last of this chapter of accidents occurred on the 25th July at Melton Mowbray on the Great Northern and London and North-Western joint line. The point at which the accident happened was on a curve, and the line was here being re-sleepered, and slightly slewed in order to improve the curve, a London and North-Western train from Nottingham came on to this section at too great a speed (though it was afterwards proved at the inquiry that the driver did not know the work had been commenced and he was acquitted from blame), became derailed, ran along the line, and ultimately fell over the embankment. Three persons were killed, including the driver and fireman.

The Parliamentary powers obtained by the London and North-Western Railway this year included powers for widening the North Union and Trent Valley sections, certain joint powers in connection with the Great Western, Lancashire and Yorkshire and North Staffordshire Companies; widenings at Birmingham and new railways at Weaste and Sheffield, new capital £420,000 with

borrowing powers for £160,000; also powers for an important new line between Heaton Lodge and Wortley, which would give the North-Western another entrance into Leeds, and new capital for this purpose amounting to £480,000 with loans for £160,000.

The dividend for this year was at the rate of 6½ per cent.

During the early part of the year 1893 the London and North-Western experienced a great loss by the death of its general manager, Sir George Findlay. Sir George Findlay was taken ill shortly before Christmas, 1892, and though he was able to attend Board meetings in the early part of the year, he never quite recovered, and died on the 26th March. Sir George Findlay's career was a striking one; from a very humble beginning he rose to be the chief executive officer of the greatest corporation in the world. Sir George Findlay was born at Rainhill, Lancashire, his father having been employed on the construction of the Liverpool and Manchester. For some time he was at the Halifax Grammar School, but at fourteen years of age he started to work. He began by learning masonry on the Halifax Branch Railway, and was successively employed in the building of the Trent Valley Railway, in the building of the North-Western engine sheds at Camden Town (it is on record that in later years he would point with pride to stones in that building dressed by himself), and in the construction of the Harecastle Tunnel on the North Staffordshire, and the Walton Tunnel on the Birkenhead, Lancashire and Cheshire Junction. After this he supervised the construction of a section of the Shrewsbury and Hereford Railway, and on the completion of this line, he was installed by Mr. Brassey, who had leased it, as manager at the early age of twenty-three. When the Shrewsbury and Hereford Railway was taken over by the Great

Western and North-Western Companies, Mr. Findlay was taken over by the latter, and appointed district representative for Shropshire and South Wales. In addition to this position Mr. Findlay was appointed manager of several local independent lines, and at one time controlled much of what is now the Cambrian Railways and also the Brecon and Merthyr, and the Hereford, Hay and Brecon Railways. In 1864, however, he was called to Euston to take up the position of chief goods manager. In 1874 Mr. William Cawkwell, the general manager, gave up many of the more active duties of his position, and Mr. Findlay was appointed chief traffic manager, while in 1880, on the retirement of Mr. Cawkwell, Mr. Findlay was appointed to the premier position. The honour of Knighthood was conferred upon him in 1892 at the time of the birthday honours. A bust of the late Sir George Findlay was placed in the shareholders' hall at Euston, with the following inscription inscribed :—

SIR GEORGE FINDLAY.

Born on the 18th May, 1829, appointed Chief Goods manager of the London and North-Western in 1864, in 1874 Chief Traffic Manager, in 1880 his unfailing common sense and intimate acquaintance with the affairs of the company placed him in the position of General Manager. The Ribbon of the Legion of Honour in France and a Knighthood at Home were the special rewards of this valuable life, cut short in 1893.

Sir (then Mr.) Frederick Harrison, the chief goods manager, was appointed to the vacant position of general manager. Mr. Harrison had entered the service of the London and North-Western Railway in 1864 and had served under the late Sir George Findlay, first at Shrewsbury and then at Euston in the goods department. After this he had

served successively as Assistant District Superintendent at Liverpool and Chester, after which he returned to Euston and filled the position first of Assistant Superintendent of the line under Mr. G. P. Neele, and then of General Goods Manager. Thus it will be seen that Mr. Harrison was eminently suited from his training and career to take up the premier executive position which the railway world can offer to any man. Another notable change in the staff which took place this year was the resignation of Admiral Dent, the company's marine superintendent.

The year 1893 was not a very remarkable one as regards railway development. The chief features of the year on the North-Western were the abolishing of second class bookings to Scotland, the running of through carriages between Glasgow and Plymouth *via* the Severn Tunnel, and the running of trains between England and Scotland, made up entirely of new vestibuled corridor coaches with first and third class dining cars attached. During this year the London and North-Western, by arrangement with the North-Eastern Railway, began to run its trains, hauled by its own engines, over the North-Eastern Railway into York and Hull.

Unfortunately this year was not free from accidents, for a fatal mishap occurred at Poulton, on the Preston and Wyre joint line. A train from Blackpool took the curve, which occurs at this point, at too great a speed, and left the rails. Three persons, including the driver, were killed outright and forty-two persons injured. The North-Western Parliamentary Act for the year contained a variety of provisions, chiefly for widening existing lines. The new capital, including loans, authorised amounted to £1,200,000.

During this year occurred the disastrous coal strike, which seriously affected the gross receipts.

These were down considerably, and the ordinary dividend sank to 5½ per cent. per annum, the lowest dividend paid since 1863.

The year 1894 witnessed the opening of two new lines, that from Buxton to Parsley Hay, and that from Seaton to the little town of Uppingham, famous for its public school. The duplicate Standedge Tunnel, which had a length of 5,344 yards, and which was situated on the Manchester and Leeds section, was brought into use during the

INTERIOR OF BOGIE POST OFFICE VAN, SHOWING SORTING TABLES,
PIGEON HOLES, ETC.

year. Other improvements included the doubling of the line from Pontardulais into Swansea, and an enlargement of Willesden Junction Station.

Improvements in train services effected during the year included the acceleration of the down London-Belfast service *via* Fleetwood by 2¼ hours, and of the up service by 2¼ hours.

This year was unfortunately marred by a terrible disaster, indeed the worst that had taken place on the North-Western since the Abergele

catastrophe. The accident occurred at Chelford in Cheshire, on the Manchester-Crewe section. Shunting had been in progress on the down line and by some unlucky chance a truck had fouled the up line. Before this was noticed an express from Manchester dashed into the obstruction at full speed. The extent of the disaster was appalling, 14 persons were killed, and 79 persons more or less seriously injured. The cost of the accident to the company, in compensation alone, amounted to a sum of over £35,000.

The gross receipts for the second half of the year exceeded six millions for the first time in any one half-year. The dividend was at the rate of $6\frac{1}{4}$ per cent., compared to $5\frac{3}{4}$ per cent. for the previous year which, it must be remembered, was the year of the coal strike, and $6\frac{1}{4}$ per cent. for 1892.

The next year was chiefly remarkable for the Railway Race to Aberdeen, which, for convenience, we have already dealt with in a previous chapter.

The chief new opening of the year was that of the line between Daventry and Leamington, which provided an alternative route to Birmingham, *via* Weedon, Leamington and Kenilworth. Other improvements brought into use during the course of the year included quadrupled lines between Bamfurlong and Wigan, a new goods depôt in Sheffield, which city the North-Western only reached by exercising running powers over the lines of the Manchester, Sheffield and Lincolnshire Railway, and a new Riverside Station at Liverpool. The construction of this latter station and the improvement of the American service had been forced on the Mersey Docks and Harbour Board and the North-Western by the migration of the Inman Line from Liverpool to Southampton, driven, it was said, by the want of enterprise of the Dock Board. Rumours of the transference of other lines from the Mersey to the Solent had at last effectually

wakened up the Dock Board, and strenuous efforts were made to keep the American trade for the Mersey, efforts, which it is needless to say, were actively backed up by the North-Western. Other improvements this year included the acceleration of 35 minutes on the London-Belfast service, *via* Fleetwood, the running of breakfast and luncheon cars on the day Irish Mails, and the placing of two new twin-screw steamers with a speed of 18 knots, the *Rostrevor* and the *Connemara*, on the Holyhead-Greenore service.

In the course of this year Mr. G. P. Neele, who had held the position of Superintendent of the Line since 1862, and during whose tenure of office the train services had been revolutionised, retired and was succeeded in the position by Sir (then Mr.) R. Turnbull, the Assistant-Superintendent of the Line. The dividend for the year was at the rate of $6\frac{3}{8}$ per cent.

The year 1896 was a singularly uneventful one as regards the history of the London and North-Western Railway. The Company secured powers to construct a short railway at Pennington, in South Lancashire, and to widen the main line between Moore and Warrington, and also various other minor powers in connection with the Great Western and Shropshire Union. During this year some of the rolling stock was fitted with Stone's system of electric lighting, a system in which a dynamo was worked from the axle, several other systems of electric lighting had been tried before this, but this was the first system to be a success. The receipts for the first half of the year were £5,903,346, and for the second half £6,599,198; and the dividend for the year was at the rate of $7\frac{1}{8}$ per cent.

The year 1897 witnessed a recurrence of the question of the carriage of the mails between Holyhead and Kingstown. It was thought by

many people that the carriage of the mails between England and Ireland should be entrusted to one company, instead of the Railway Company handing them over to the Steampacket Company at Holyhead, as was the case. However, the London and North-Western Railway was destined not to receive the contract, for the Nationalists raised an outcry at this "fresh injustice to Ireland" and the Dublin Steampacket Company received the contract. Though not receiving the Mail contract, the North-Western smartened up and improved its Irish service; the up night Irish Mail was accelerated by 50 minutes and the down night mail by 70 minutes, sleeping cars commenced to run between London and Holyhead on the 10.15 *ex* Euston and 1.50 *ex* Holyhead, and dining cars were added to several trains. The North Wall service was also accelerated 75 minutes on the up and 65 minutes on the down journey, and a new service was inaugurated between London and Dublin North Wall, taking 8 hr. 50 min. on the journey. A magnificent new twin-screw steamer, the *Cambria*, was placed on the Holyhead-North Wall service. The *Cambria* was 338 feet long, with a gross tonnage of 1,842 and a speed of 22 knots, and was the first twin-screw on the Dublin service. In addition to all these Dublin improvements, the North-Western also improved the Belfast service, accelerating the London-Belfast services *via* Greenore by 3 hours on the up and nearly 2 hours on the down journey. These wholesale improvements effectually roused the Steampacket Company, which placed four new boats of 24 knots on the Holyhead-Kingston service; these were named the *Ulster*, *Leinster*, *Munster* and *Connaught*, and replaced the old paddle-boats of the same names.

The Parliamentary Act for 1897 contained powers for certain works on the Chester and

Holyhead section, for a new railway, the Croxley Branch, and for other purposes. The dividend was the same as that for the previous year, namely $7\frac{1}{8}$ per cent.

The next year witnessed still further improvements in the Irish services, the morning services between London and Dublin *via* North Wall being accelerated 90 minutes on the down and 60 minutes on the up journey. Restaurant cars were added to certain trains running to Holyhead, and also to certain trains running on the other side of the Channel in connection with the North-Western services. In the course of this year the Company secured powers to carry out a large system of widening into London, between Euston and

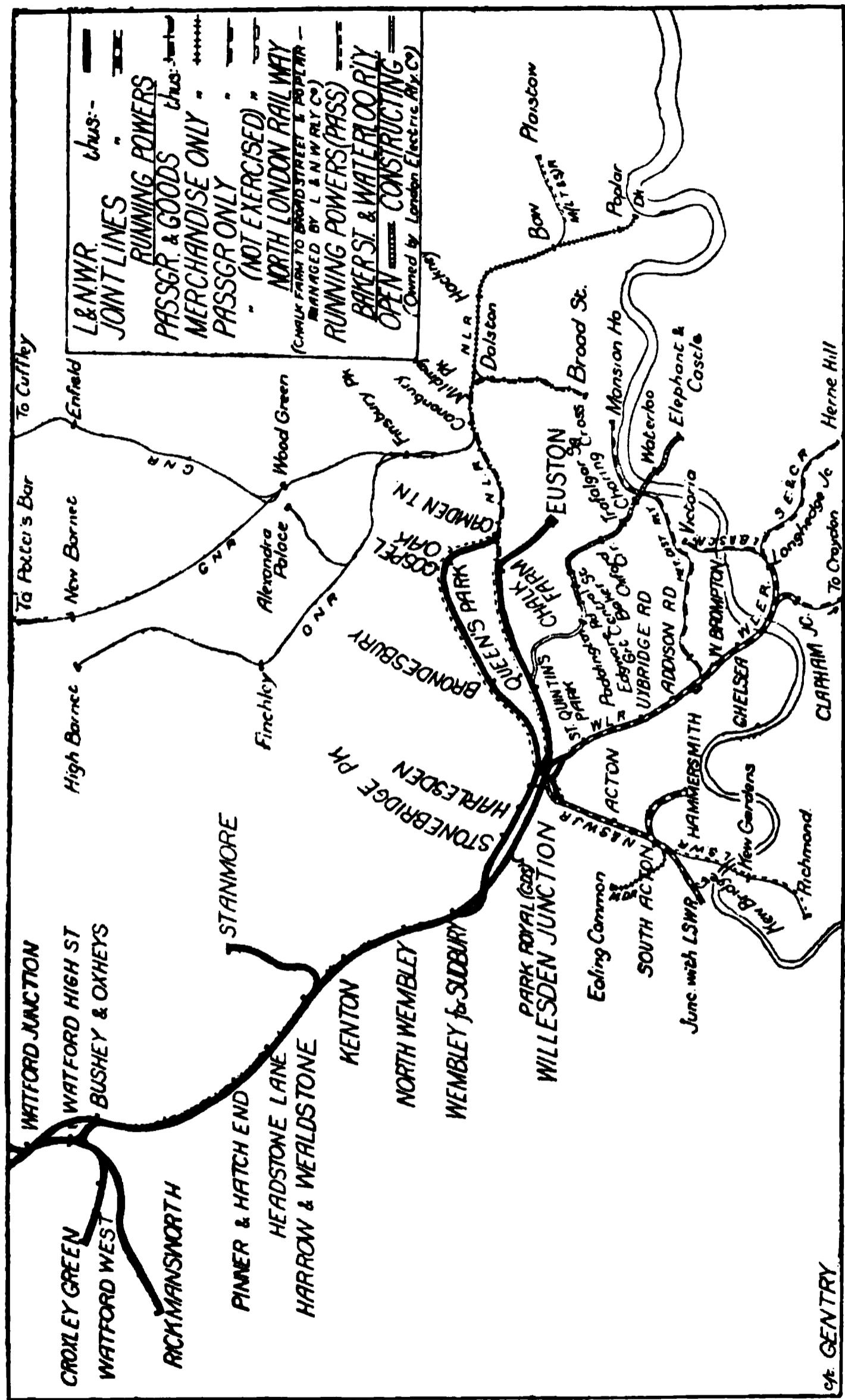
WEST COAST JOINT STOCK BOGIE POST OFFICE VAN, WITH APPARATUS EXTENDED FOR PICKING UP MAILS.

Camden, a section which had begun to resemble the 'neck of the bottle' and was fast becoming unable to accommodate the rapidly increasing demands made upon it. For the second half of the year the gross receipts for the first time in any one half-year exceeded seven millions sterling; the dividend for the year was again the same, $7\frac{1}{8}$ per cent.

In the course of the next year the London and North-Western absorbed the Harrow and Stanmore Railway, the working of which it had undertaken since the opening. The Harrow and Stanmore was a short line of some $2\frac{1}{4}$ miles, connecting Stanmore with the North-Western; its capital amounted to £36,000 in shares and £12,000 in loans.

In the course of this year there was opened a very important piece of line, from Parsley Hay to Ashbourne, which together with the Burton-Parsley Hay section, opened a few years previously, had been constructed at a cost of about one and a-half millions. This line, together with the running powers which the North-Western had obtained over the North Staffordshire between Burton and Ashbourne, besides providing a new route from the South to Burton, gave the North-Western an alternative route to Manchester *via* Nuneaton and Ashbourne, a route which was only about eleven miles longer than the shortest route between the two cities.

On the 12th of January occurred a frightful disaster to a goods train; had the ill-fated train happened to be a passenger train, as might easily have been the case, the disaster would in all probability have been one of the worst on record. The accident occurred at Penmaenmawr, on the North Wales Coast, where the Chester and Holyhead section runs on a walled embankment skirting the shore. A gale was blowing at the time, and in



MAP OF THE LONDON AND NORTH-WESTERN RAILWAY IN THE LONDON DISTRICT.
North London Railway Passenger Trains run by arrangement to and from Broad Street Station, over the Great Northern Railway from Canonbury, to High Barnet, Alexandra Palace, Cuffley, and Potter's Bar.

consequence the line was being patrolled by watchmen ; suddenly to their horror these latter discovered that the sea had washed the embankment away for a length of seventy or eighty yards, leaving the permanent way suspended over this yawning abyss. They immediately rushed to give the alarm, one in the direction of Chester and the other in the direction of Holyhead. The latter was just in time to stop a train, but as the former reached the Penmaenmawr tunnel he could hear an approaching express goods train thundering through the tunnel. In spite of detonators placed on the line and frenzied waving of a red lamp the approaching goods train failed to pull up in time, and took the suspended permanent way at a speed of thirty-five miles an hour. The locomotive and the first part of the train were precipitated into the angry waters below, and the engine-driver and fireman of the ill-fated train were drowned. Had the accident occurred to a crowded passenger train, one shudders to think of what the death-roll might have been.

During the year the London extension of the Manchester, Sheffield and Lincolnshire, which had now become the Great Central Railway, was opened for traffic and the latter began to work a goods and passenger service between London and Manchester. This of course meant increased competition, but the competition, for passenger traffic at any rate, was not very serious as the Great Central's route to Manchester was 206 miles compared to the North-Western's 188 miles, and in the case of Liverpool the disparity became even more pronounced. The new route of the Great Central touched the North-Western main line at Rugby and Harrow, and also placed the Great Central in competition with the North-Western at Leicester, Nottingham, and Aylesbury, places to which the North-Western possessed branch lines. The Company's Act included powers for a line to

Red Wharf Bay in Anglesey. The dividend for the year was at the rate of $7\frac{1}{8}$ per cent.

Towards the end of the next year, 1900, a line of fourteen miles was opened between Leeds and Huddersfield, this line ran through the Spenn Valley, and gave the North-Western a much-needed alternative route between Leeds and Huddersfield, and superseded the use of a crowded section of the Lancashire and Yorkshire line near Huddersfield, which the London and North-Western had previously had to use for all its Yorkshire trains.

The Company's Act provided for widenings near Crewe and additional works at Euston, also some joint powers with the Great Western—new capital for these purposes, £1,500,000 and £500,000 loans. The Company also obtained powers for numerous widenings on the Chester and Holyhead section, and new capital powers of £250,000 and borrowing powers of £83,300.

The dividend for the year was $6\frac{1}{4}$ per cent., a reduction of over 1 per cent. The gross receipts for the year showed an increase, but the large increase in the working expenses, chiefly coal and labour, accounted for the reduced dividend.

During 1901 the London and North-Western Railway instituted a tranship shed at Crewe, which effected considerable saving in working expenses. By this system goods traffic coming from all directions was intercepted at Crewe and sorted and re-arranged, so as to send out full train or truck loads to the various destinations. Let us take a concrete example, and see how this system works. Suppose a few packages were handed in at Chester for conveyance to Bedford. Either these would have to wait until there were enough to make up a full truck load, or else they would have to be forwarded in a wagon three-parts empty. By the tranship system all this was changed. The

THE APPROACH TO EUSTON, PHOTOGRAPHED FROM NO. 4 SIGNAL BOX.

packages, in company with others for various destinations, would be loaded up at Chester in full wagon loads and consigned to Crewe, where they would be re-sorted. Here packages for Bedford would in all probability have come in from Liverpool, Warrington, Manchester and the Yorkshire line, and these would be loaded in full wagon loads and despatched to Bedford. Thus it will be seen that the tranship system made a better use of wagons with consequent less haulage of dead weight and decrease of locomotive power expenses, whilst it also accelerated the early delivery of consignments.

Another event which occurred during the year was the termination of the old agreement between the London and North-Western and Messrs. Pickford, by which the latter had acted as the former's cartage contractors. Henceforward the North-Western did its own carting. The dividend was at the rate of $5\frac{1}{2}$ per cent., a reduction of $\frac{3}{4}$ per cent.

During the next year, 1902, the North-Western took over jointly with the Great Western the powers to construct certain short railways in South Wales which had been obtained by the Blaina and Western Valley Railway.

In June of this year enormous improvements were introduced in the Birmingham, Liverpool and Manchester services, and express trains were put on covering the distance between Euston and Birmingham in 2 hr. 5 min., between Euston and Manchester in $3\frac{1}{2}$ hours, and between Euston and Liverpool in $3\frac{3}{4}$ hours.

A pleasing feature of the year was the bestowal by His Majesty the King of a Knighthood upon the Company's General Manager, Mr. Frederick Harrison. An unpleasant feature of the year was a revolt of a small section of shareholders lead by Mr. Burdett-Coutts, who headed an attack on the

Board. At the half-yearly meeting a resolution hostile to the Board was proposed, but, fortunately, it was defeated.

The Company's Act, obtained this year, provided for widenings of the Trent Valley section between Nuneaton and Atherstone, and between Armitage and Rugeley, and for the construction of a large new dock at Garston.

ON TIME ! THE 2.14 P.M. ARRIVING AT RUGBY.

The Act also contained some joint powers with the Great Western. Altogether, the Company was authorised to raise new capital to the extent of a million, with borrowing powers for £300,000.

The gross receipts for the year showed an increase, and the dividend was increased $\frac{1}{2}$ per cent., being at the rate of 6 per cent., as compared to $5\frac{1}{2}$ per cent. for the preceding year.

CHAPTER XVII.

CONCERNING LOCOMOTIVE MATTERS.

During 1903 Mr. F. W. Webb retired from the position of locomotive superintendent, a post he had held since 1871; we will, therefore, proceed to give a few of the chief features of interest connected with his *regime* at Crewe, but before doing so we must repeat, what we have already said, that neither does the author pretend to be a locomotive expert, nor does this work lay any claim to be a complete locomotive history of the line; indeed, an attempt is only made to refer briefly to the chief types of passenger engines which have appeared on the line. Mr. Webb first entered Crewe Works in 1851 as pupil under Mr. F. Trevithick; in 1859 he was placed on the Drawing Office Staff, and in 1861 he was appointed manager of Crewe Works. This position he did not hold very long, for in 1866 he left the London and North-Western to take up the management of the Bolton Iron and Steel Works. However, on the retirement of Mr. Ramsbottom in 1871, Mr. Webb returned to Crewe to take up the premier position in the locomotive department. On his accession, Mr. Webb continued the building of the 'Newton' class of engine, designed by Mr. Ramsbottom. These engines were of the 2-4-0 type, coupled wheels 6 ft. 6 in. in diameter, and inside cylinders 16 in. by 24 in. Mr. Webb soon determined to try an express engine with smaller driving wheels, and turned out a class of engine known as the 'Precursor' class, of the 2-4-0 type, with coupled wheels 5 ft. 6 in. in diameter, and cylinders 17 in.

by 24 in. Altogether forty of the 'Precursors' were constructed. These engines were not what one might term an unqualified success, and it was found that larger driving wheels were desirable for express work. It is interesting to note that these 'Precursors' were afterwards rebuilt as tank engines. In 1874 Mr. Webb turned out from Crewe a new class of engine, the first of which was named *Precedent*. These engines were of the 2-4-0 type, with coupled wheels 6 ft. 9 in. in diameter, cylinders 17 in. by 24 in., and weighing in working order about 35 tons, or complete with tender 60 tons. These engines were a great success, the class being multiplied, and for years they performed most of the express work of the line. In addition to building seventy engines of this class, Mr. Webb also rebuilt over ninety engines of the 'Newton' class, designed by Mr. Ramsbottom, as engines of this class. It was an engine of this class, *Hardwicke*, that during the 'Race to Aberdeen' in 1895 ran from Crewe to Carlisle, a distance of 141 miles, at an average speed of 67·2 miles per hour. Mr. Webb next turned his attention to compound engines, of which system he will always be known as one of the foremost advocates. Presumably, most persons are aware of the difference between a 'simple' and a 'compound' locomotive, but in case someone chances to read this who is unaware of the difference, it may be said that the chief difference is that in a compound engine the steam is used twice by a system of several cylinders, whereas in a simple engine the steam is only used once. Many advantages have been claimed for the compound system, chief of which undoubtedly is the decrease in fuel consumption; other advantages claimed for the system are: greater utilisation of heat by increasing the range of steam expansion in two cylinders instead of one; better steam distribution; and certain mechanical

advantages in the design of the locomotive, such as a larger firebox, uncoupled independent driving wheels, and driving wheels placed farther apart than is possible in the case of simple coupled engines. Before bringing out a new class of compound express engines, Mr. Webb experimented with an old Trevithick engine, which he converted into a compound and placed in service on the Ashby and Nuneaton branch in 1878. In 1881 Mr. Webb brought out his first compound express locomotive, which was somewhat happily christened the *Experiment*. The *Experiment* was compounded on Mr. Webb's own system, with two high pressure cylinders, 13 in. diameter by 24 in.

THE *Experiment* OF 1906: 4-6-0 EXPRESS LOCOMOTIVE CONSTRUCTED BY MR. G. WHALE.

stroke, and one low pressure cylinder, 26 in. diameter by 24 in. stroke. The leading pair of wheels were 3 ft. 6 in. in diameter, and the two pairs of driving wheels were 6 ft. 6 in. in diameter. The weight of the engine in working order was 37 tons 15 cwt., while together with the tender it weighed 62 tons 15 cwt. The story of its trial trip has been told by Mr. Webb. "Before it was painted," says Mr. Webb, "I hooked it on (at Crewe) to assist a heavy express from Liverpool with nineteen coaches. I tried it with steam shut off from the other engine for some distance along the Trent Valley. They ran without trouble from Crewe to London. When the engine arrived in London it was all right, and I had it turned round and hooked it to the morning mail, which it took to Holyhead. When the engine arrived at Holyhead it was still all right, and I then gave the men something to eat, turned the engine round, and hooked it to the boat express, which it took to Crewe. The engine thus did 528 miles as a christening trip." The *Experiment* was apparently a successful one, for the original *Experiment* was followed by twenty-nine others of the same class, built at Crewe between 1882 and 1884. The compound system having proved satisfactory, Mr. Webb followed up his 'Experiment' class with a new class of compound express engines of slightly increased dimensions. This class was known as the 'Dreadnoughts,' so named from the first engine, and altogether forty of this class were built at Crewe between 1884 and 1888. The 'Dreadnoughts' had two high pressure cylinders, 14 inches diameter by 24 inches stroke, and one low pressure cylinder, 30 inches by 24 inches stroke. The diameter of the leading wheels was 4 ft. 6 in., and the diameter of the two pairs of driving wheels was 6 ft. 6 in. In working order the engine weighed 42 tons 10 cwt., and together with the

tender 69 tons 2 cwt. It is interesting to note that during 1888 a compound express locomotive was built to the designs of Mr. F. W. Webb by Messrs. Beyer and Peacock, of Manchester, and shipped to the United States of America to the order of the Pennsylvania Railroad, on which line it ran for about eight years. The 'Dreadnought' class was followed by the 'Teutonic' class, a class with slightly enlarged dimensions, of which ten were built during 1889-90, and all of which were given names

0-8-0 GOODS LOCOMOTIVE, THREE-CYLINDER COMPOUND, BUILT AT CREWE, 1893.

ending in 'ic,' after ships of the White Star Line, except *Jeanie Deans*, which was given a Scottish name with a view to appearing at the Edinburgh Exhibition. One of this class, the *Ionic*, in 1895 made a record long distance run without a stop from London to Carlisle, a distance of 299 miles. The chief dimensions of the 'Teutonic' class were as follows: Leading wheels, 4 ft. 11 in. in diameter; two pairs of driving wheels 7 ft. 1 in. in diameter; two high pressure cylinders 15 inches diameter by 24 inches stroke; one low pressure cylinder 30 inches diameter by 24 inches stroke; weight of engine in working order 46 tons 10 cwt., and together with tender 73 tons 2 cwt. In his next class of express passenger engine Mr. Webb made a novel departure, and introduced a greatly enlarged class of eight-wheeled compound engines. The first of this class, turned out in 1891, was called the *Greater Britain*, and the class was accordingly known as the 'Greater Britains.' The chief dimensions of this class were as follows: Leading and trailing wheels, 4 ft. 1 in. diameter; two pairs of driving wheels, 7 ft. 1 in. diameter; two high pressure cylinders, each 15 inches diameter by 24 inches stroke; one low pressure cylinder, 30 inches diameter by 24 inches stroke; weight of engine in working order 52 tons 15 cwt., and together with tender 79 tons 7 cwt. The 'Greater Britains' had very long boilers, with a combustion chamber in the middle, and giving a heating surface of 1,505 square feet. Altogether ten engines of the "Greater Britain" class were built. One of these, the *Queen Empress*, was sent over to the Chicago Exposition, together with some rolling stock, where it obtained the highest award, and afterwards ran over fifteen hundred miles under its own steam on the New York Central and Hudson River, and Lake Shore and Michigan Southern Railroads.

The 'Greater Britains' were followed by a similar type of engines, the 'John Hicks,' which had 6 feet driving wheels instead of 7 feet, and of which ten were built at Crewe between 1894 and 1898.

In 1897 Mr. Webb made a new departure, and introduced a four-cylinder compound locomotive, which was the first engine on the North-Western to be fitted with a leading bogie. This class was known as the 'Jubilee' class, and the chief

REFRIGERATOR MEAT VAN.

dimensions were as follows: Bogie wheels, 3 ft. 9 in. in diameter; coupled wheels, 7 ft. 1 in. in diameter; two high pressure cylinders, each 15 inches diameter by 24 inches stroke; two low pressure cylinders, each 19½ inches (but afterwards altered to 20½ inches) in diameter by 24 inches stroke; weight of engine in working order 54 tons 8 cwt., and together with tender 81 tons. These four-cylinder engines differed considerably from the three-cylinder ones. In

the three-cylinder engines there had been two pairs of driving wheels working independently of each other, while in the four-cylinder one all the cylinders drove a single axle and the driving wheels were coupled together by side rods 10 ft. 7 in. in length. Altogether, 40 engines of the 'Jubilee' class were constructed at Crewe. In 1901 he brought out a new class of engine, the first of which was named *Alfred the Great*, which was virtually an enlarged and improved edition of the 'Jubilee' class. The following were the chief dimensions of this type; bogie wheels 3 ft. 9 in. in diameter, coupled wheels 7 ft. 1 in. in diameter; two high pressure cylinders 16 in. diameter by 24 in. stroke, two low pressure cylinders 20½ in. diameter by 24 in. stroke; weight of engine in working order 57 tons 12 cwt., and together with tender 84 tons 4 cwt. This was the last class of express passenger engines built by Mr. Webb; in all 40 locomotives of this class were turned out. It is interesting to note that the two first engines of this latter class were named *Alfred the Great* and *King Edward VII.*, in honour of the accession of King Edward and of the millenary of King Alfred.

No attempt is here made to deal with the numerous goods engines turned out at Crewe by Mr. Webb, but mention must be made of the four cylinder and three-cylinder compound eight wheel coupled goods locomotives which Mr. Webb built at Crewe. These huge engines were built for the heavy goods and coal traffic, and together with their tenders weighed considerably over 80 tons.

During Mr. Webb's *regime* the second thousandth locomotive, the third thousandth, and the fourth thousandth were built at Crewe Works. The second thousandth was turned out in 1876, the third in 1887, and the fourth in 1900. It was during Mr. Webb's term of office at Crewe that, in

order to show what could be done, a locomotive was once built in $25\frac{1}{2}$ hours. In addition to many improvements in connection with locomotives, Mr. Webb patented a form of steel sleeper which was used for some time on parts of the North-Western, but the use of which was subsequently abandoned. The last type of engine built by Mr. Webb was a six-wheeled coupled goods engine with a leading bogie, turned out in 1903. The coupled wheels were 5 ft. in diameter, and there were two high pressure cylinders 15 in. by 24 in. stroke, and two low pressure cylinders $20\frac{1}{2}$ in. diameter by 24 in. stroke. The weight of engine and tender in working order was 91 tons 12 cwt. As we have already said, in 1903 Mr. Webb retired, and he was succeeded in the chief position at Crewe by Mr. G. Whale. Mr. Webb did not live long, however, after his retirement and died in 1906. By the terms of his will he left numerous legacies to charitable and religious institutions in Crewe and other chief centres of the London and North-Western system, and the residue of his estate, about £75,000, he left to found an orphanage at Crewe for the children of deceased employees of the London and North-Western Railway.

On Mr. Whale's accession at Crewe the locomotive practice of the line underwent a complete change. Mr. Webb, as we have seen, had been a strong advocate, and practically the pioneer in this country, of the compound system, but Mr. Whale reverted to the simple system. Mr. Whale's first action was to alter considerably the locomotives of the 'Alfred the Great' class, and the alterations effected greatly improved the efficiency of these engines.

At this period it must be confessed that double-heading on the expresses had come to be looked upon almost as a normal state of affairs, and so Mr. Whale set himself the task of designing an engine

EXTERIOR OF LATEST TYPE OF CORRIDOR DINING SALOON, 65 FEET 6 INCHES LONG, 9 FEET WIDE, CARRIED ON TWO 6-WHEEL BOGIES.

which would remedy this state of things. This engine, the *Precursor*, was a four-wheeled coupled engine with a leading bogie, and was turned out from Crewe Works in March, 1904, and on its trial run a train weighing, with engine and tender, 471 tons between Crewe and Rugby and attained a speed of 67 miles per hour.

Its chief dimensions were as follows:

Cylinders 19 in. diameter by 26 in. stroke ; diameter of wheels : bogie wheels 3 ft. 9 in., coupled wheels 6 ft. 9 in. ; weight of engine in working order, 59 tons 15 cwt., weight, together with tender, 90 tons 15 cwt. The *Precursor* was a great success, and not belying its name, it was the forerunner of a large class of similar engines.

But while the 'Precursor' class did away with double heading on the southern section of the line, it was found that double heading had still to be resorted to in order to draw the increasingly heavy trains up the heavy gradients which occur on the Lancaster and Carlisle section. In order to do away with this, Mr. Whale next designed a special class of six-wheel coupled express engines. The first of this class No. 66 *Experiment* was turned out from Crewe Works in May, 1905. Its principal dimensions were as follows : Cylinders, 19 in. by 26 in. ; diameter of wheels, bogie wheels, 3 ft. 9 in. ; coupled wheels, 6 ft. 3 in. ; weight of engine in working order, 65 tons 15 cwt. ; and together with tender, 102 tons 15 cwt. The *Experiment* was very successful, and others of the same class soon followed. The next type of passenger engine turned out by Mr. Whale was a tank engine with four coupled wheels, a leading bogie and trailing radial wheels. These engines, known as the 'Precursor' tanks, were designed for hauling the heavy suburban traffic between London and Watford, Manchester and Buxton, etc. The first of the class was turned out in 1906, and its principal dimensions were as follows : Cylinders, 19 in. diameter by 26 in. stroke ; diameter of wheels, bogie wheels, 3 ft. 3 in. ; coupled wheels, 6 ft. 3 in. ; trailing wheels, 3 ft. 9 in. ; weight of engine in working order, 74 tons 15 cwt.

Brief reference must be made to the work which Mr. Whale carried out in regard to goods locomotives. Besides converting many of Mr.

Webb's eight-coupled goods and mineral engines from compounds to simples, which was highly successful, Mr. Whale brought out a new class of goods engines with six coupled wheels and a leading bogie, which very much resembled in outward appearance the *Experiment* class of express passenger engines. The chief dimensions of this class were as follows: Cylinders, 19 in. by 26 in. stroke; diameter of wheels, bogie wheels, 3 ft. 3 in.; coupled wheels, 5 ft. 2½ in.; weight of engine in working order, 63 tons; together with tender in working order, 100 tons.

In February, 1909, Mr. Whale resigned, and was succeeded in the position of Chief Mechanical Engineer by Mr. C. J. Bowen-Cooke, superintendent of the running department of the southern section. The locomotives which Mr. Bowen-Cooke has designed are well-known, but we will give a few brief particulars.

In 1910, Mr. Bowen-Cooke turned out from Crewe an engine named *George the Fifth*, which was virtually a 'Precursor' modified in certain particulars and fitted with a superheater. It is on record that during her trials this engine drew a train, weighing 357 tons exclusive of engine and tender, from London to Crewe, a distance of 158 miles in 156½ minutes. In 1911, Mr. Bowen-Cooke placed in service a new class of heavy tank engines. These engines had six coupled wheels, a leading bogie and a trailing radial wheel, and were designed for working the heavy suburban passenger traffic of the line. During her trials an engine of this class easily attained a speed of 75 miles per hour with a passenger train. The chief dimensions of this class were as follows: Cylinder, 20 in. by 26 in.; diameter of wheels, bogie wheels, 3 ft. 3 in.; coupled wheels, 5 ft. 8½ in.; radial wheels, 3 ft. 3 in.; weight in working order, 77 tons.

Mr. Bowen-Cooke's *magnum opus*, so far, is undoubtedly the *Sir Gilbert Claughton* class of engine. This class of engine has six coupled wheels and a leading bogie, and the first of the class, No. 2222, named after the Chairman of the Company, made its appearance early in 1913. This engine was remarkable in several particulars, it had four non-compound cylinders, placed abreast, all driving the leading coupled axle. The fire-box was of the Belpaire type, and a Schmidt superheater and the Walschaert valve gear, the latter for the first

THE Precursor of 1904: THE PRESENT STANDARD 4-4-0 EXPRESS LOCOMOTIVE.

THE LATEST DESIGN OF EXPRESS LOCOMOTIVE, Sir Gilbert Claughton, No. 2222, 4-6-0 TYPE, 4 CYLINDERS, SUPERHEATER.

time on the North - Western, were fitted. The principal dimensions were : Cylinders (4), 16 in. diam. by 26-in. stroke. Diameter of wheels : bogie, 3 ft. 3 in. ; coupled, 6 ft. 9 in. Diameter of boiler, 5 ft. 2 in. ; length, 14 ft. 6 in. Weight of engine and tender, 116 tons.

H a v i n g briefly catalogued the few particulars of certain locomotives, we will now resume our narrative, but before doing so we should like to repeat the statement that this work lays no claim to being a locomotive history of the line.

CHAPTER XVIII.

1903—1913.

RECENT DEVELOPMENTS.

We have now reached recent years, and this chapter must needs be more or less of a catalogue of recent events which are well-known to many people.

During 1903 the London and North-Western opened a new line in Lancashire between Leigh and Bedford and Wigan. Enlargements were carried out this year at the Shrewsbury joint station. Perhaps the most important event of the Railway year was the dramatic purchase by the Midland Railway of the Belfast and Northern Counties Railway of Ireland, which was one of those sudden and bold strokes of policy which has all through its history been characteristic of the Midland management. At this time the Midland Railway was busy constructing docks on the North Lancashire coast in order to gain a share of the Irish traffic, and by the purchase of this large and important railway system it hoped to gain a considerable hold on the traffic of the North of Ireland. This latest move of the Midland's threatened the London and North-Western's routes to the North of Ireland, and as some safeguard against the threatened competition the North-Western accelerated its services between London and Belfast, *via* Holyhead and Greenore, on the up journey by an hour and on the down journey by 50 minutes.

A notable event of the year was the building by the London and North-Western Railway of a new Royal train. Previous to this, the Company had on

more than one occasion wished to build a new Royal train, but it had not done so, owing to the special request of Queen Victoria, who preferred to use the two special coaches built for her in 1869, which were subsequently much improved and mounted on one underframe as one continuous carriage. In the

SIR GILBERT CLAUGHTON, BART., CHAIRMAN OF THE LONDON
AND NORTH-WESTERN RAILWAY.

course of this year, however, the Company turned out from its shops at Wolverton a Royal train, including two special saloons, one for the King and one for the Queen, which were in every way worthy of the Sovereign of the greatest Empire that the

world has ever seen. These two saloons were the last word in the art of the railway coach-builder. The King's saloon contained a day room, a bed room, a dressing room, and a smoke room ; and the Queen's saloon included a bed room, a dressing room and a boudoir ; both the saloons were finely finished and were fitted up with all the latest improvements, such as electric light, electric heating apparatuses, electric fans, noise-proof floors and dust proof ventilators. These saloons were built on special steel underframes, mounted on six-wheeled bogies, and each saloon was 65 ft. 6 in. in length, 9 feet wide, and 8 ft. 7 in. high.

Mr. Webb, the company's chief mechanical engineer, retired this year, and his place at Crewe was filled by Mr. Whale, but these matters have already been fully dealt with in the preceding chapter.

An event worthy of recording, which occurred on the 19th of July of this year, was the running of a special train without a stop between Euston and Carlisle, a distance of 299 miles.

The Parliamentary powers obtained this year by the Company did not contain anything of general interest. The dividend was at the rate of $5\frac{7}{8}$ per cent. per annum.

In July, 1904, the London and North-Western Railway inaugurated the 'Sunny South Special,' a train which, starting from Manchester and Liverpool, ran through to the London, Brighton and South Coast Railway, *via* Willesden, eventually reaching Brighton and Eastbourne. By means of the various connections provided by this train many of the large towns of the North were given a direct service to the South Coast which did away with all necessity for 'cabbing across London.'

During this year the Midland Railway began to run its boats to Ireland from Heysham, its new port on the Lancashire Coast, in connection with

its Irish undertaking. As we have just seen, the North-Western in the previous year had improved its service to the North of Ireland owing to this competition looming ahead, and now it effected a further improvement in its services. The London-Belfast service *via* Greenore was accelerated 70 minutes on the down, and half an hour on the up journey, and on the other side of the Channel the Great Northern Railway of Ireland, working in alliance with the London and North-Western, placed breakfast and dining cars on the Greenore-Belfast route.

Other features of this year worthy of chronicling were the destructive fire which partially destroyed the Company's great goods station at Haydon Square, Aldgate, and the awarding to the Company of the 'Grand Prix,' at the St. Louis Exhibition, in the United States, for its collection of railway materials and rolling stock.

The chief feature of the Company's Bill was the provision of a new channel and lock at Garston Docks. New capital, amounting to £300,000, and borrowing powers for £100,000, was authorised by this Act.

The dividend was at the rate of 5½ per cent. per annum.

On the 1st of January, 1905, the London and North-Western Railway entered into a working agreement with the Lancashire and Yorkshire Railway. As we have seen in earlier parts of this book, the North-Western and the L. & Y.—as it is generally called in the North—had been on very intimate terms from an early period, and had many joint interests and properties, such as the Belfast-Fleetwood steamers, the joint system of railways which served Blackpool and the Fylde district, the Park Hotel at Preston, joint sections of the Lancashire Union and of the North Union, besides joint stations at Preston, Huddersfield, and

elsewhere. On the 1st of January, however, as aforesaid, the two Companies added further to their joint interests by entering into a very close working agreement, and thereby did away with much competition and redundancy all over Lancashire and the West Riding of Yorkshire, where the lines of the two Companies came into contact at innumerable points. While this needless competition was abolished and economies effected, it must not be thought that this was done at the expense of the public; indeed, the latter were undeniably gainers by it, for tickets became interchangeable and available by the trains of either Company.

While the London and North - Western Railway was thus successful in lessening competition in one important part of its system, there was the prospect looming ahead of increased competition at another important

part of the system, for in this session the Great Western Railway lodged a Bill in Parliament seeking powers to construct a line greatly shortening its route between London and Birmingham and the Western Midlands; and having successfully passed through Parliament, this Bill received the Royal Assent on the 11th of July. Before this Bill passed, however, the London and North-Western gave the Great Western a foretaste of what it might expect should it be rash enough to challenge the North-Western's proverbial supremacy in the Midland Metropolis, for on the 1st of March the London and North-Western services between London and Birmingham were revolutionised, and four trains—in each direction—were placed on the service doing the journey in 2 hours without a stop.

The Liverpool service also received some improvement this year, an express being provided between London and Liverpool, which performed the journey in 3 hr. 35 min.

This year witnessed the introduction of a new type of rolling stock on the North-Western; these were known as rail motor cars, and consisted of a long bogie saloon, capable of seating 48 passengers, with an engine, contained in one end of the saloon, driving the bogie. These 'combined' locomotive and carriages were introduced for working small branch lines and lines where the traffic was so sparse as not to warrant the running of ordinary trains. It was during this year that the North-Western introduced another sort of motor service—a road motor service; for this year the Company began to run a motor omnibus service between Connah's Quay and Flint and Mold. This motor omnibus service was a great success, and since then the Company has increased its motor omnibus routes.

The Parliamentary powers obtained this year

provided for widenings on the Eccles, Tyldesley and Wigan section, and for new capital to the extent of £360,000, and borrowing powers for £120,000. The dividend for the year was 6½ per cent.

The outstanding feature of the year 1906 were the improvements at Crewe, which were brought into use during the year. At Crewe lines converged from (1) London, Birmingham and the South; (2) Liverpool, Scotland and the North; (3) Manchester, Leeds and Yorkshire; (4) Chester, North Wales, Holyhead and Ireland; (5) Shrewsbury, Hereford and Central and South Wales; and, in addition to these lines, the Great Western Railway ran into Crewe from Market Drayton and the North Staffordshire ran in from the Potteries, so it will readily be seen what an immense traffic passed through Crewe. As far back as the early 'nineties the accommodation at Crewe had begun to prove inadequate and the lines to become congested, and it had been recognised that drastic measures must be taken to improve the accommodation at Crewe, the central pivot of the North-Western system. The problem to be solved was no easy one, especially when one considers that at busy times nearly a thousand trains a day, including light engines, passed through Crewe. Other sources of trouble at Crewe were the large amount of shunting and remarshalling of passenger trains that had to be carried on with the minimum amount of obstruction to other lines, and the fact that many of the goods trains proceeding out of or into Crewe had to cross the main line, thus interfering considerably with the working of the passenger traffic. At length a satisfactory scheme for doing away with all these inconveniences was devised, and the work, which entailed the expenditure of a vast sum, was begun. The chief features of the work at Crewe were the

building of an huge addition to the station and the construction of a number of goods lines, chiefly in tunnel, which freed the passenger station and the main line from the vagaries of many of the goods trains. The new passenger station was brought into use in June, although all the improvements were not completed until somewhat later. We have already noted earlier in this chapter that in 1904 the Midland Railway commenced to run boats between England and the North of Ireland, and during this year the Great Western Railway opened a new harbour at Fishguard in South Wales and commenced to run boats to Rosslare, and so, in addition to the increased competition for traffic to the North of Ireland, the North-Western had now to meet increased competition for traffic to the South of Ireland.

The London and North-Western Railway's Parliamentary Bill contained powers for the construction of two short railways in North Wales, the Holywell curve and the Denbigh curve, and also for a branch at Pellwyn in Monmouthshire; the new capital authorised was £100,000, with borrowing powers for £33,000. For the second half of the year the gross receipts for the first time in any single half-year exceeded eight millions. The dividend on the ordinary stock was at the rate of $6\frac{3}{8}$ per cent. per annum.

The year 1907 was chiefly remarkable for three things: a terrible disaster at Shrewsbury, a threatened railway strike, and a working agreement between two of the North-Western's competitors. We will deal with them in the foregoing order. In the early hours of the morning of October the 15th a mail train from the North for Bristol and South Wales, which had left Crewe at 1.20 a.m., for some unexplained reason ran at full speed round the curve which occurs just outside Shrewsbury. The whole train excepting the last

coach left the metals and became a total wreck. The death roll was appalling, no less than eighteen persons were killed, while many more were seriously injured. Many theories were brought forward as to why the train took the curve at such a high speed, but as both the driver and fireman of the train were killed, the question can never be definitely solved. The Shrewsbury disaster must be added to the list of unexplained accidents which occur from time to time.

During this year the Amalgamated Society of

THE KING'S DAY SALOON, ROYAL TRAIN.

Railway Servants got up an agitation for 'Recognition,' which meant the recognition by the Companies of the Society's officials to mediate between the Companies and their servants, and failing recognition they proclaimed a national railway strike. At the eleventh hour Mr. Lloyd George, then President of the Board of Trade, stepped in and carried through an agreement which was to last

for seven years, and which provided for 'Conciliation Boards' to deal with matters in dispute. Although the Press lavished a plentiful supply of praise on this measure, it was in reality somewhat unfortunate, for had the strike been allowed to take place, there can be little doubt that it would have been of short duration and the question of recognition would have been definitely shelved for some time.

The third important event of the year was the announcement made by the Great Northern and Great Central Companies at the very close of the year that they intended to enter into a thorough-going working agreement under powers granted them by Parliament in 1858. To anticipate matters a little we may here say that this agreement came before the Railway Commissioners for sanction early the next year, and the London and North-Western, in common with most of the chief railways, appeared in opposition against it. The agreement, however, failed to secure the approval of the Commissioners.

The Company's Parliamentary Bill, obtained this year, contained some very important provisions, including a new railway and widenings between Euston and Watford, and in connection with this new line a widening of the Rickmansworth branch and a new line, the Croxley Green branch. The Bill also contained other items, including railways at Coventry and Holywell, and some powers jointly with the Great Western; altogether new capital to the extent of £2,700,000 and loans to £900,000 were authorised to be raised. The dividend for the year was at the rate of 6½ per cent., the same as that for the preceding year.

The next year, 1908, was chiefly remarkable for the number of working agreements which were arranged. We have seen that in 1907 the Great Northern and Great Central Railways tried to

effect a working union under an old Act of Parliament, but failed to obtain the consent of the Railway Commissioners. During this year, however, they brought forward a new scheme for a working agreement, which this time included the Great Eastern Railway as well.

The formation of this great alliance on its eastern side was a situation which could not be viewed with equanimity by the London and North-Western, and the latter's reply to this was to enter into an alliance with the Midland, the great system which flanked it all the way from London to Carlisle and competed with it in most of the great towns of the country. By this agreement competition between the two lines was greatly lessened, and co-operation took its place. Nor was this the only agreement which the North-Western carried out during the year, for it also carried through an agreement for the working of the North London Railway. The North London, as has already been recorded earlier in this book, although a separate company, was largely owned by the London and North-Western, in whose interest (or rather that of its predecessor, the London and Birmingham) it had been originally promoted. From its start the North London was a very profitable undertaking, and for years it had been looked upon as a safe 7 per cent. concern. The dividends, however, had lately deteriorated greatly; first they dropped to $6\frac{1}{4}$ per cent., afterwards to $5\frac{1}{2}$, then to $4\frac{3}{4}$, and finally, during this year, the dividend sank as low as $3\frac{1}{2}$ per cent. At this stage it was realised that something must be done, and so it was arranged that the North-Western should thenceforward work the line. Special meetings of the North-Western and North London were held in December, at which the agreement was approved. Speaking at the North London meeting, Lord Rathmore, the Chairman of the Company, and also a director of

the London and North-Western, said: "The North London Company will continue to exist as a separate corporation, and its independent shareholders will have their interests preserved and safeguarded exactly in the same way, both by their representatives on the Board and by their voting power at the meetings of the Company, as they are at present. Those gentlemen, however, who now fill the superior offices will be retired, and their places will be taken by the corresponding officers of the North-Western Company, who will, so far as the work they do for the North London Company is concerned, be responsible—directly responsible—to the Board of the North London Company. Again, with a view to further economy, the North-Western Company undertakes to supply us, at a reasonable price, subject to arbitration if necessary, with such rolling stock, engines, sleepers, machinery, and apparatus as we may require." On the 1st of January of the next year the working arrangement came into operation.

During this year (1908) the North-Western transferred its mid-day service from North Wall to Kingstown. To this move the City of Dublin Steampacket Company took exception, and brought an action against the North-Western to restrain it from using the Carlisle Pier at Kingstown. To anticipate matters a little, it may be stated that the action was afterwards decided in favour of the Railway Company.

Other events of the year worthy of notice were the opening in July of a new line in Anglesey from Holland Arms to Pentraeth, and the placing on the 2 p.m. trains of the West Coast route of some magnificent new stock built with high elliptical roofs and quite the last word in railway carriage construction.

The gross receipts for the two halves of 1908 were £7,526,240 and £8,138,266, both halves

showing a reduction on the corresponding ones of the previous year, the dividend also showed a reduction, being at the rate of $5\frac{3}{4}$ as compared with $6\frac{3}{8}$.

The catalogue of important events which took place during 1909 is a fairly lengthy one. On the 1st of January, as has already been recorded, the North-Western undertook the working of the

LOUNGE COMPARTMENT OF LIVERPOOL-EUSTON AMERICAN CORRIDOR TRAIN, FURNISHED WITH EASY CHAIRS, TABLES AND COUCH.

North London Railway. On the 1st of January, the North-Western service between Broad Street and the Mansion House ceased to run over the electrified lines of the District Railway between Earl's Court and the Mansion House. In May, the Wilmslow and Levenshulme line was opened for passenger traffic. This was a loop line of some 9 miles on the Manchester-Crewe section, which

avoided Stockport, and was part of a great scheme of improvement in the Manchester district, which also included extensive widenings of the line into Manchester and the construction of a new station, called the Mayfield Station, in Manchester, for suburban traffic. Other openings included a new dock at Garston and the Red Wharf Bay line in Anglesey, the first section of which had been opened during the previous year.

A most important announcement was made this year as to the future policy of the London and North-Western Railway; this took the form of a working agreement between the London and North-Western, Midland and Lancashire and Yorkshire Railways. This working agreement was the natural outcome of the previous agreements which the London and North-Western had effected with the Midland and with the Lancashire and Yorkshire, and was the London and North-Western's reply to the Triple Alliance recently formed by the Great Northern, Great Central, and Great Eastern Railways.

An important development at Holyhead took place this year when the White Star Line adopted Holyhead as a port of call in their Liverpool-New York service.

Two new turbine steamers of 21 knots were during this year placed on the Fleetwood-Belfast service.

This year was remarkable for the large number of changes which occurred in the *personnel* of the staff. Sir Frederick Harrison resigned, and was elected to a seat on the Board; and on the 1st of February, Sir (then Mr.) Frank Ree, the Chief Goods Manager, took up the chief executive position. Sir Frederick Harrison had been General Manager since 1893, and, as showing the progress which the Company made during his *regime*, the gross receipts, which at the year of his accession were

over eleven millions had risen to over fifteen and a-half millions at the year of his resignation. Mr. Frank Ree, who succeeded Sir Frederick Harrison, had been with the Company since 1873, and had passed through successive positions until he had attained the position of Chief Goods Manager.

Mr. Ree was succeeded as Chief Goods Manager by Mr. Carl Grasemann, the Out-door Goods Manager for the Southern division.

Mr. Whale, the Chief Mechanical Engineer, resigned, and was succeeded by Mr. C. J. Bowen-Cooke, the Superintendent of the Running Department of the Southern division. Mr. Thornhill, the Chief Engineer, also retired this year, and was succeeded by Mr. E. F. C. Trench, the Chief Assistant Engineer.

The dividend for the year was at the rate of $5\frac{7}{8}$ per cent.

In 1910 the Great Western inaugurated a new express service over its shortened route between London and Birmingham. Previous to the opening of the Great Western route, the North-Western took steps to meet the forthcoming competition, and greatly improved its services between London and Birmingham, and between Birmingham and Manchester and Liverpool; and a series of "City to City" expresses, with dining cars and a typewriting office on board, were placed on the service which ran from Broad Street Station in the City to Birmingham and Wolverhampton. The only new work of any note brought into use during the year was the new Mayfield Station in Manchester. Unfortunately, the year's working was marred by a bad accident which occurred at Willesden Junction in December, a rear collision taking place between a Broad Street and an Euston train, which resulted in the death of five persons.

The dividend for the year was at the rate

OBSERVATION CAR, ATTACHED TO THE REAR OF TRAINS IN THE SCENIC DISTRICTS OF NORTH WALES.
The seats are reversible, so that passengers can look out of the rear of the coach.

of $6\frac{1}{4}$ per cent.

The outstanding feature of the next year (1911) was the resignation of the Chairman, Lord Stalbridge, who had held the position for twenty years. Lord Stalbridge was succeeded in the chairmanship by Sir (then Mr.) G. H. Cloughton, who had been appointed to the Deputy Chairmanship during the previous year.

At the end of this year the Board announced a momentous change in the manner of working their suburban traffic. We have already recorded the fact, that in 1907 the North-Western obtained powers for a new line—virtually, a widening of the old—between Euston and Watford, in order to cope with the growing suburban traffic, and now the Board decided to electrify their line; but this was not all, for the Board further decided to electrify the North London between Camden and Broad Street, and also the Hampstead Junction and the North and South-Western Junction lines. Previous to this, the only trunk line running out of London to decide to electrify its suburban lines had been the London, Brighton and South Coast Railway, and on this line the electrification had proved a great success, and doubtless, the electrification of the North-Western's lines will prove equally as successful. The dividend was at the rate of $6\frac{1}{2}$ per cent. This year (1911) was marred by the great railway strike; as this is such modern history, it does not call for much reference, suffice it to say that it was settled by the appointment of a special commission.

During the next year (1912) the coal strike took place, and the North-Western, in common with the other chief companies, had to curtail considerably its services.

New lines opened this year included the widened lines from Willesden to Harrow and the Croxley Green branch, and also a branch to Holywell Town. During the year a baronetcy was conferred on Mr. G. H. Claughton, the chairman of the company; whilst at the New Year's Honours of the next year a knighthood was conferred on Mr. Ree, the General Manager.

Unfortunately, a terrible disaster occurred this year on the North-Western at Ditton Junction, a few miles out of Liverpool. A train was derailed

owing to high speed at the crossover and 16 persons were killed and many injured.

The dividend for 1912 was $6\frac{1}{2}$ per cent. per annum.

We will now proceed to record one event which took place in the year 1913, namely, the visit of their Majesties King George and Queen Mary to Crewe Works. Crewe, in the course of its history, had received many distinguished visitors, notable amongst whom was King Edward when Prince of Wales, but never before had the Reigning Monarch visited the works.

On the 21st of April the King and Queen left Euston by special train at 11.35 a.m., and arrived at Crewe at 2.30 p.m., where their Majesties were received by the Mayor of Crewe, Councillor F. Manning, a signalman in the employ of the London and North-Western. After this the King and Queen proceeded to go around the works, where they took the greatest interest in all the successive stages of locomotive building. In the evening the Railway Company entertained a large number of its old employees to a banquet, and the town was *en fête* with a blaze of illuminations in the streets and a great display of fireworks. In the evening Mr. Robert Turnbull, the Superintendent of the Line, was summoned to Crewe Hall, where the King conferred on him the honour of a knighthood. In connection with the Royal Visit, the following statistics were published by the Company.

Capital	...	...	...	...	£116,188,591
Revenue per annum	...	...	...	...	£16,733,193
Expenditure per annum	...	...	...	...	£10,885,041
Number of persons employed by Company	86,500				
Number of persons employed in loco-					
tive department...	...	...	...	...	20,683
Population of Crewe	...	...	...	...	45,354
Miles operated on...	...	...	...	...	3,038

Engines owned, including rail motors	...	3,111
Carriages owned	... ..	9,216
Wagons owned	... ..	78,450
Carts owned	... ..	7,107
Horses owned	... ..	6,086
Steamships owned	... ..	16
Passengers carried, exclusive of season ticket holders	... ..	79,005,445
Number of season tickets issued	...	184,327
Tons of goods and minerals carried annually...	... ..	54,517,214
Number of stations	... ..	800
Number of signal cabins...	... ..	1,294
Number of signal levers in use	... ..	38,112
Number of accounts opened last year at Crewe for special orders for various departments	... ..	21,000
Annual value of work done by the locomotive department for various departments, &c.	... ..	£919,000

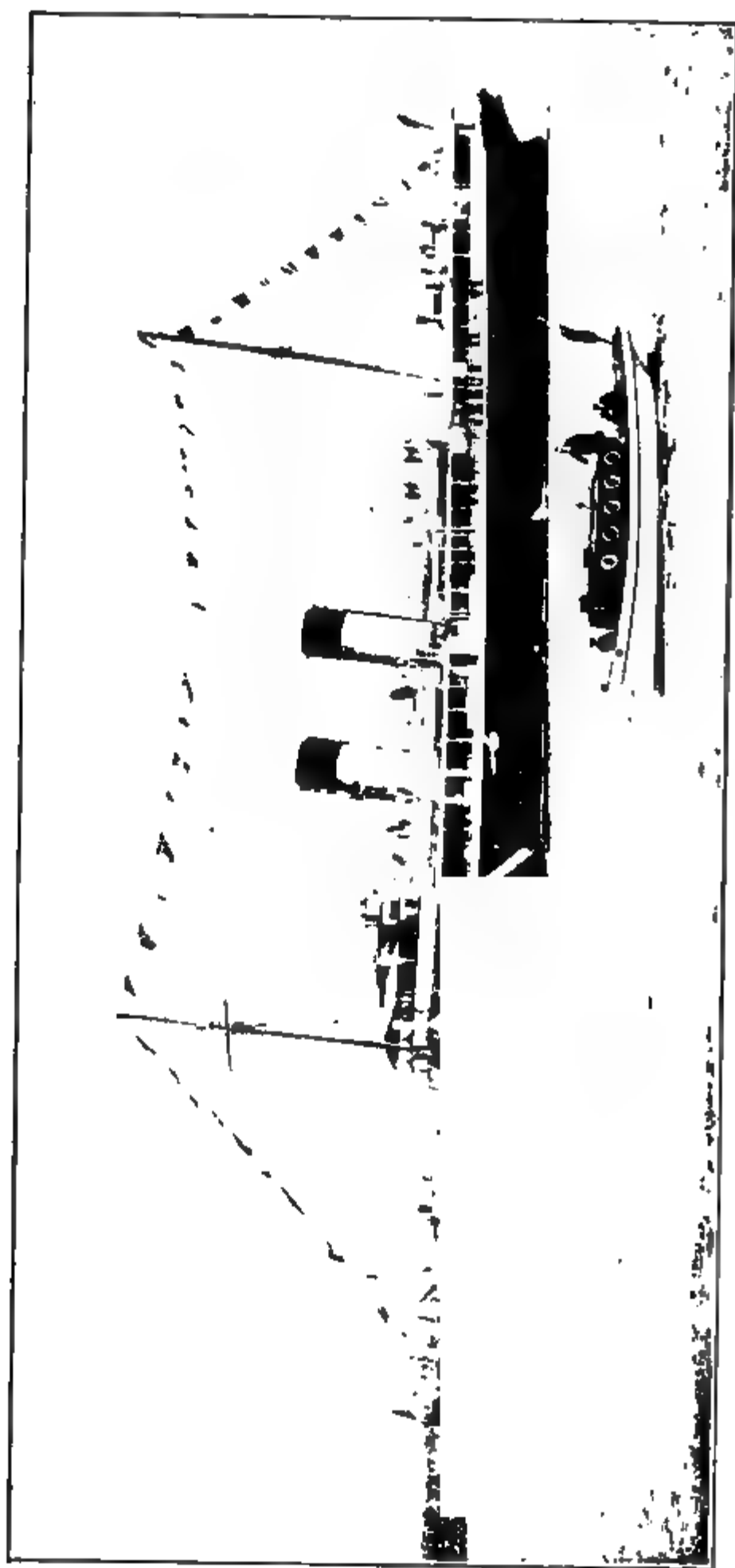
The yearly engine mileage is equal to a journey—

- (1) Round the world every 3 hours ;
- (2) To the moon in 29 hours ;
- (3) To the sun in about $15\frac{1}{2}$ months.

Crewe engine works occupy 137 acres of ground, the covered area being 48 acres.

We have now reached the end of this book, and, we think, all who have read it will agree with the author that the history of the rise and development of the London and North-Western Railway is a wonderful story of industry, enterprise and progress.

Beginning, as we have seen, in a comparatively modest way as a number of small units, the London and North-Western Railway was formed in 1846 by the amalgamation of these lines, the united undertaking possessing a capital slightly exceeding £17,000,000, and 420 miles of lines. By means of amalgamations, extensions and leases the London



THE *Scotia*, ONE OF THE FINE STEAMERS OF THE LONDON AND NORTH-WESTERN RAILWAY'S EXPRESS SERVICE BETWEEN HOLYHEAD AND KINGSTOWN.

and North-Western has expanded in all directions, and to-day possesses nearly 2,000 miles of line and a nominal capital exceeding £124,000,000. The absorption of the Lancaster and Carlisle Railway carried its rails northwards to the Scottish Border, and the amalgamation of the Chester and Holyhead Railway gave it the premier route between England and Ireland, and all over the country this policy of amalgamations and judicious agreements has been pursued, with the result that to-day there is not a centre of industry in the country that does not feel the influence of the North-Western system. North and South from London to Carlisle and East and West from Cambridge to Holyhead, run the lines of the North-Western, tapping practically every town of any importance. Between London and Birmingham, Liverpool, Manchester, Dublin, Belfast and Glasgow the London and North-Western is the quickest route, not to mention scores of towns of lesser importance, while the lines of the North-Western provide the shortest route between the Metropolis and many parts of England, Scotland, Ireland and Wales. From Aberdeen and Inverness in the North to Brighton and Dover in the South, and from Newcastle in the North-East to Bristol and Plymouth in the South-West, the chocolate and white coaches of the London and North-Western Railway are a familiar sight. It is unnecessary to dilate further upon the importance and extent of the London and North-Western system; we venture to think that most people who have troubled to finish this book will agree with the author that the London and North-Western Railway is undoubtedly entitled to be called "The Premier Line of the British Isles."

FINIS.

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